MICRO PLAN

Of

Sihphir Venghlun

Green India Mission

Prepared by

Forest Development Agency

Aizawl, Mizoram.

Executive Summary

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(b)   The Importance of L1 and L2 landscape selected
(c)   Scope of implementing GIM in L2 and L3 landscapes i.e. problems and analysis and drivers of degradation
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Chapter 1
Introduction, Scope and Objectives

1.1 About the State (Landscape - L1)

1.1.1 Introduction

Mizoram was earlier a part of the British India since 1895. In 1898, the district called "Lushai Hills" was created with Aizawl as its headquarter. After independence in 1947, the district was renamed as "Mizo District" and also the autonomous Mizo District Council was established on 25th April, 1952. Subsequently, Mizoram was made a Union Territory in 1972 and finally, it became the 23rd State of India on 20th February, 1987.

1.1.2 Location, Extent and Topography

Mizoram, which is one of the Seven Sister States in the North-Eastern India, is located between 21° 56' and 24° 35'N Latitude and 92° 16' and 93° 26'E Longitude. It shares the boundary with Assam and Manipur on the North, Myanmar on the East and the South, and Tripura and Bangladesh on the West. The long international boundary (about 630 miles) of Mizoram with Myanmar and Bangladesh makes it strategically located.

The geographical area of the State is 21,087 sq. km. with mostly hilly terrains. Most of the hills have moderate to steep slopes and are separated by rivers flowing either to the North or South direction. These rivers have created deep gorges between several hill ranges. In fact, Mizoram is "a land of rolling hills, valleys, rivers, and lakes" (Environment & Forest Department, 2010, p.5). The plains occupy comparatively a very small portion of the total geographical area and are mostly located at places such as Champhai, North Vanlaiphai etc. on the eastern part of the State.

1.1.3 Climate

The whole of Mizoram enjoys a pleasant climate with cool summer and moderate winter. The temperature varies from 11°C to 21°C during winter and 18°C to 29°C in summer. The State gets rainfall from both the North-East and the South-West Monsoon. It receives heavy rains from May to September. The average annual rainfall is about 254 cm. As such, the climate in Mizoram is conducive to conservation and sustainable development of forests.

1.1.4 Soil

The soil in Mizoram, in general, is fertile and rich in organic contents. However, the soil depth is found less at few places, particularly at very steep slopes, due to the effect of heavy run-off in degraded forests. The contents of potash and phosphorus in the soil are low, whereas the content of nitrogen is normally high because of the accumulation of organic matters over the years. The fertile soil is generally found at low to moderate slopes, on river banks and in the valleys. The soil at such places is responsive to the vigorous and healthy growth of the forests and thus supports rich biodiversity.

1.1.5 Demography

The population of the State was 10,91,014 as per 2011 census, of which 5,52,339 (51 percent) are male and 5,38,765 (49 percent) are female. The population density has increased from 33 to 52 persons per sq. km. during the decade, 1999 - 2011. Most of the people in the State belong to several culturally-linked ethnic tribes which are collectively called "Mizos" (Mi: People, Zo: Hill). These people are highly educated. Mizoram has a literacy rate of 91.58 %, which ranks it second among States in India. "Mizo" and "English" are the main languages spoken by the majority of the people.

1.1.6 Socio-economic life of the people

Since signing the "Peace Accord" on 30th June 2006, the State has effectively implemented several developmental schemes. Peace and development have resulted into comparatively better Human Development Index (HDI). The HDI in Mizoram was found 0.67, the highest among the north-eastern States and more than the national average (Government of Tripura, 2007, p.28).

Agriculture is the dominant source of income and employment for the people in Mizoram. As per 2001 census, 61 percent of the working population in the State was dependent on agriculture. In rural areas, most of the people are engaged in "Jhumming" (shifting cultivation). 89,454 households, 57.85 percent of total 1,54,643 households, were cultivators and further, 78,195 households, 87 percent of all cultivator households, were practicing shifting cultivation (Government of Mizoram, 2004, p.17). The "Jhumming" practice has adversely affected the rich forest cover of the State. Planned efforts are now being made to control and transform the practice of shifting cultivation into settled agriculture. Technical and financial assistance is being given to the rural people enabling them to leave the practice of shifting cultivation and get engaged in other sustainable livelihood activities such as horticulture, piggery, settled cultivation etc.

1.2 The forests in Mizoram

1.2.1 Forest cover

A large area - 19,277 sq. kms. (91.44 percent of the State's total geographical area) - is covered under forests i.e. Forest and Tree cover (Forest Survey of India, 2013). However, the forests have suffered serious depletion and degradation due to the traditional practice of shifting cultivation, uncontrolled fire, unregulated felling etc. As per the "India State of Forest Report 2013" published by the Forest Survey of India, the State has 13,016 sq. kms. open forests which is 67.70 % of the total forest cover and 61.74 % of the total geographical area. The density-class of forests found in the State has been shown below graphically in Figure 1.

Figure - 1
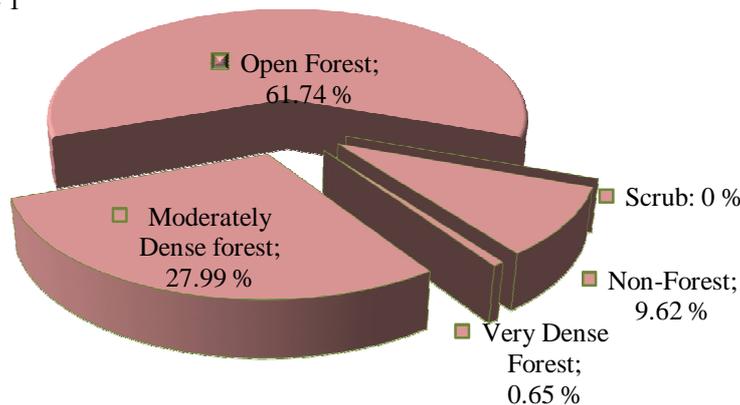
Source: Forest Survey of India, 2013

1.2.2 Forest types

The forests in Mizoram are very rich in biodiversity. As many as 6 important forest types have been reported to occur in the state (Forest Survey of India, 2011). These are:-

- **Cachar Tropical Semi-Evergreen Forest (2B/C2):** Mostly found in all districts of the State. The important species are *Dipterocarpusturbinatus, D. tuberculatus, Terminaliachebula, Emblicaspp, Careyaarborea etc.*

- **Secondary Moist Bamboo Brakes (2/2S1):** Dominant species of bamboo like *Melocannabambusoides, Dendrocalamushamiltonii etc.* are present.

- **Pioneer Euphorbiaceous Scrub (2B/2S1):** It is generally found in degraded forests and exposed lands present on higher slopes and on top of the hills. It has quick growing species like *Macaranga* spp., *Mallotus* spp. etc. This type is found in all districts except Kolasib.

- **East Himalayan Moist Mixed Deciduous Forest (3C/C3b) :***Schima wallichii, Syzigium cuminii, Albizziaprocera, Dilleniapentagyna, Artocarpus lakoocha, Terminalia ballerica, T. chebula, Lagerstroemia parviflora, Anthocephalous kadamba*etc. are the characteristic species of this type. It is found in all districts of Mizoram.

- **East Himalayan Subtropical Wet Hill Forest (8B/C1):** Major characteristic species are *Quercusvercus, Q. serrata, Castanopsis spp, Litsea spp. Machilus spp* etc. This forest type is found in Kolasib district.

- **Assam Subtropical Pine Forest (9/C2):** It is mostly dominated by the species *Pinuskesiya* with other associates like *Quercus* spp, *Schima wallichii, Rhododendron* spp etc. This forest type is found mainly in Champhai district of the State.

1.2.3 Bamboo Resources

Nature has endowed Mizoram with valuable Bamboo Forests. Bamboos - Green Gold for the State - are one of the most important natural resources which provide immense economic and environmental benefits for the local people. Bamboos are used for

multiple purposes as the culms are straight and strong but light. These are used extensively in house construction particularly in the rural areas, as food, and for making various household items such as stools, benches, kitchen utensils, agricultural implements, and fishing devices. Further, bamboo acts as an effective soil binder protecting the slopes from erosion through its deep and extensive root system.

Bamboos are found abundantly in the State mainly along river banks and on abandoned jhumland. Both the clump forming and the non-clump forming species occur naturally in most parts of the State except on the higher altitudes of its eastern region. A large area of about 9,245 sq. kms., which is 44 percent of the State's geographical area, is covered under "Bamboo Forests" (Forest Survey of India, 2011, p.61). In spite of being small in size, Mizoram contributes significantly to the country's growing stock of bamboos.

Bamboo resources of the country have been assessed by the Forest Survey of India (FSI), Dehradun. As per the India State of Forest Report 2011 (Chapter 6) published by the FSI, total number of culms in recorded forests of Mizoram has been estimated to be 2,205 million as against 23,297 million estimated at the national level. Similarly, the total estimated green weight of bamboo culms has been estimated to be 13,187,000 tonnes for the recorded forests of Mizoram as against 1, 69,312,000 tonnes for the whole country. The growing stock of bamboos in recorded forests of Mizoram as against the same for the whole country has been shown below graphically.
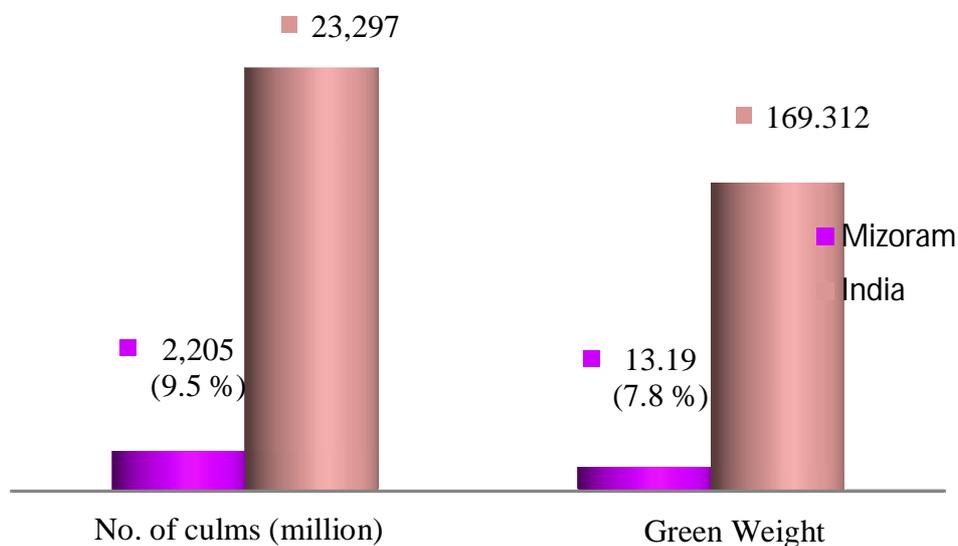
Area under "pure bamboo brakes" in Mizoram was found the highest among all the States/Union Territories of the country (226 sq.kms.). The dense bamboo forests also cover a large area in the State of Mizoram. The dense bamboo across all the States was found maximum in Arunachal Pradesh (8,681 sq. kms.) followed by Mizoram (6,116 sq.kms.).

The bamboo forests in Mizoram are also rich in bio-diversity. 35 species of bamboos under 9 genera have been reported to grow in the State (E & F Department,

2010). *Melocanna baccifera*(locally called "Mautak"), a non-clump forming species, is the prominent species found in the State. Other dominant species are *Dendrocalamus hamiltonii* (Phulrua), *D. longispathus* (Rawnal), *Bambusa tulda* (Rawthing), *B. longispiculata* (Rawthing chi), and *Arundinari acallosa* (Phar). These species do not occur in large proportions like Mautak but are commercially valuable.

1.2.4 Areas under Notified Forests in the State

The notified forests include (1) Riverine Reserve Forests (1832.50 sq.kms), (2) Innerline Reserved Forests (570 sq. kms.), (3) Roadside Reserve Forests (97.20 sq.kms.), (4) Other Reserve Forests (1963.63 sq. kms.) and (5) Protected Areas (1240.75 sq.kms) under the ownership of the State Government as well as 2562 sq. kms. under the ownership of District Councils. Thus, about 39 percent of the total geographical area (8266.08 sq.kms.) is covered under "notified forests" in the State of Mizoram.

1.2.5 Protected Areas

The Environment and Forest Department, Govt. of Mizoram has taken praiseworthy initiatives for preservation of wildlife by constituting one Tiger Reserve, two National Parks and seven Wildlife Sanctuaries. These are (1) Dampa Tiger Reserve, (2) Murlen National Park, (3) Phawngpui National Park, (4) Ngengpui Wildlife Sanctuary, (5) Lengteng Wildlife Sanctuary, (6) Khawnglung Wildlife Sanctuary, (7) Tawi Wildlife Sanctuary, (8) Thorangtlang Wildlife Sanctuary, (9) Pualreng Wildlife Sanctuary, and (10) Tokalo Wildlife Sanctuary. The area set aside for long-term wildlife conservation is 1728.75 sq. km. which is more than 8 % of the State's geographical area.

The network of protected areas provides healthy habitats for many wild animals, birds, and reptiles. Some important species of mammals found in the State are Tiger, Elephant, Malayan Sun Bear, Wild dog, Brush Tailed Porcupine, Gour, Leopard Cat, Marbled Cat, Golden Cat, Clouded Leopard, Serow etc. The forests of Mizoram also provide habitats for primates such as Assamese Macague, phyare Leaf Monkey, Slow Loris, Pig Tailed Macaque, Stump Tailed Macaque, Rhasus Macaque, and Capped Langur and also for Hoolock Gibbon, the only ape found in India.

Important bird species found in the State are Black Stork, Oriental Darter, Serpent Eagle, Black Eagle, Humes Bartailed Pheasant, Blyth's Tragopan, Green Burmese Peafawl, Grey Peacock, Rufous Patridge, Brushed Patridge, Yellow-legged Button quill etc. The Hornbill species include Great Indian Hornbill, Wreathed Hornbill, Oriental Pied Hornbill, Brown Hornbill, and Rufous-necked Hornbill.

1.3 Bio-geographical importance

The forests in Mizoram are ecologically significant as the region represents an important part of the Indo Myanmar bio-diversity hotspot which is one of the 25 global biodiversity hotspots recognized across the globe. Several hot-spots in the State carrying diverse flora and fauna have been identified for protection. Further, the region is part of biologically distinctive eco-system (Mizoram-Manipur-Kachin Rainforests

Eco-region). As such, conservation of the forests in the State is a necessity for arresting the progress of climate change and mitigating the impact of changing climate on the people.

1.4 Expectations of people from the forests

1.4.1 People's Participation in Conservation of the Forests

The State of Mizoram moved from State regulation to people's participation for managing its rich forest wealth by adopting the "Joint Forest Management" (JFM) through a notification issued in 1998. The introduction of JFM established a new mutually-beneficial relationship between the forests, the people and the State. The basic objective for adopting the mechanism of JFM in the State was to encourage active involvement of the local people in enrichment, protection and sustainable management of the forests.

It was envisaged to impart sense of ownership over the forest areas covered under JFM to the villagers. Guidelines for managing the forests with people's participation were framed. As per these guidelines, the local people participating in managing the forests and the State would share the forest produce, which may be extracted from the areas covered under JFM by applying scientific principles of sustainable management.

The organizational structure for managing the forests with constructive participation of the local people, at present, consisted of three levels in the State i.e. (1) State Forest Development Agency (SFDA) at the State level, (2) Forest Development Agencies (FDAs) at the divisional level, and (3) Village Forest Development Committees (VFDCs) at the village level. Eco-Development Committees (EDCs) have been constituted for the villages located near the protected areas. The existing guidelines for JFM included (1) the procedures for constituting SFDA, FDAs and VFDCs/EDCs, (2) their duties and responsibilities, (3) methodology of preparing micro-plans, their effective implementation, and timely monitoring, (4) fund flow mechanism, and (5) disposal of forest produce and sharing of benefits.

For involving the local people in planning, implementation, and monitoring of schemes for forest management, one SFDA, 21 FDAs and 598 VFDCs/EDCs have been constituted in Mizoram. These committees i.e. VFDCs/EDCs have 2, 75,435 members belonging to 80,728 families. Memorandum of Understandings (MoUs) has been signed between SFDA and FDAs and also between various FDAs and VFDCs/EDCs.

Works under centrally sponsored scheme - "National Afforestation Programme" (NAP) - are mainly taken up by VFDCs/EDCs through FDAs. Revised operational guidelines for implementing NAP through JFM were issued in the year 2009 by the Ministry of Environment and Forests, Government of India. These guidelines were aimed at (1) strengthening institutional arrangements for project implementation (capacity building), (2) treatment of highly degraded lands (problem lands), (3) application of latest nursery and plantation techniques, (4) generation of additional sustainable income for members of VFDCs/EDCs through value addition to forest

produce and linkage to better markets for forest-based products. The Government of Mizoram has adopted these revised guidelines by issuing notification in March, 2010.

The scheme - NAP - is being implemented effectively in Mizoram through the mechanism of JFM. Suitable tree species have been planted over an area of 57540 ha. under NAP during the period2003-04 to2013-14. These plantations are being protected through joint efforts of the local people and the Government agencies. It is expected that enrichment, protection, and sustainable management of the forests through JFM will provide substantial benefits to the local people while contributing significantly to ecological equilibrium and environmental stability.

1.4.2 Stakeholder's expectations

The local people particularly those living nearby forest areas expect sustainable livelihood support from the forests through extraction of permissible yield, value addition to forest produce and marketing of value-added products. They also expect to meet their needs for constructional timber at economical cost from the forests. However, they are also concerned for ecological stability in the region. Expectations of various stakeholders from the Environment and Forests department are given as under:-

Table 1

Slno.	Name of Stakeholder	Expectations from the Department
1	The Indian citizens living in Mizoram including the indigenous people.	a. Ecological balance and environmental stability. b. Bonafide forest-based needs - constructional timber, fuel wood, and fodder – as per the Mizoram Forest Act,1955. c. Constructive participation in afforestation, enrichment, and protection of forests. d. Easy access to information on uses and economic benefits of the forest products including Non-Timber Forest Products (NTFPs) and Medicinal Plants. e. Availability of technical know-how as well as other facilities for raising private plantations.
2	The State Government	a. Effective implementation of the planned schemes achieving the desired outcomes. b. Satisfaction of the local people.
3	The Government of India	a. Conservation of environment and forestry resources as envisaged in the National Forest Policy, 1988. b. Balance between conservation and development by implementing the provisions of the Forest (conservation) Act, 1980 as well as other National and State acts and rules related to management of the forests and the wildlife.

4	The forest officials working in the State	a. Healthy working conditions. b. Adequate facilities at par with our counterparts in other departments/services. c. Awards and recognition for good works.
5	Non-Government Organizations (NGOs)	a. Increase in forest cover. b. Enrichment and protection of the existing forests. c. Preservation of wildlife by creating and maintaining healthy habitats for them. d. Generating awareness towards the importance of forests and wildlife. e. Eliciting active participation of public in conservation and protection efforts.
6.	Private tree/bamboo growers	a. Technical knowhow. b. Logistic and financial support for raising and managing the plantations. c. Mechanism to facilitate harvesting and transportation of timber and bamboos.

Accordingly, the Department of Environment & Forests, Government of Mizoram is committed to provide a variety of services, both tangible as well as intangible, to the citizens by scientifically managing the rich forest cover existing in the State. The tangible services include (1) arranging forest products of economic importance such as constructional timber, fodder, fuel-wood, sand, gravels etc. at reasonable costs, (2) offering gainful employment while implementing various schemes for enrichment and protection of the forests, (3) creating opportunities for additional income through the mechanism of "Joint Forest Management", (4) disseminating information on importance and economic benefits of the forests including Non-Timber Forest Products and medicinal plants, (5) building and maintaining eco-friendly recreation sites and trails, (6) making technical know-how available for raising and managing private forests/plantations, and (7) assisting private tree-growers in silvicultural harvesting and transporting of timber inside as well as outside the State. The intangible services include (1) stabilizing the climate, (2) enriching the soil fertility, (3) recharging ground water, (4) regulating the water flow, and (5) offsetting the air pollution.

1.5 Objectives for GIM implementation

Although the identified landscape (L-1) - the entire state of Mizoram - has a large area under forest cover, the forests are not rich in quality. About 67.70 % of the forest cover is open, having very less canopy density. A large extent of open forest, particularly in the hilly terrain, can have devastating impacts on the normal structure and the delicate interdependencies of diverse flora and fauna in the forest ecosystem. The situation is likely to be further aggravated in Mizoram by the prevalence of shifting cultivation and other biotic interferences.

Efforts to enrich and protect the forests are being taken up by effectively implementing various schemes such as National Afforestation Programme, Integrated Forest Management, Thirteen Finance Commission Grants-in-Aid, National Bamboo Mission, New Land Use Policy etc. The local people are being encouraged to shift from shifting cultivation to settled agriculture by providing them technical and financial assistance.

The treatments being done to the landscape coupled with the proposed interventions under Green India Mission (GIM) will save the valuable hilly ecosystem of the State from deterioration. It is expected that implementation of proposed strategies will enhance the quality of existing forests, ecologically re-stock wastelands, improve eco-system services, increase forest-based livelihood income and augment annual CO_2 Sequestration.

1.6   Scope of implementing planned interventions under GIM

The GIM, which aims at providing sustainable livelihood support to the people in a stable eco-system, would be implemented initially in 51 villages of eight identified L2 landscapes. These villages form compact blocks for treatment in five Forest divisions/4 districts of the State. It is further planned to extend the mission in other parts of the State. It is to mention here that, the entire State has been identified as vulnerable i.e L1 landscape

Chapter 2
Details of Identified Landscapes

2.1   Criteria for selection of L1 Landscape

Criteria, which were adopted for identification of L1 landscape, are given below:-

			Table 2
		Details of Criteria	
Item	Criteria	Details	Details of the source of data, maps etc. appended
1. Forest cover and degradation	a) Forest cover	19,277 sq. kms. (91.44% of the State's geographical area).	India State of Forest Report 2013, Forest Survey of India, Dehradun.
	b) Bio-diversity	The State is rich in Bio-diversity, having six major forest types, namely i) Cachar Tropical Semi-Evergreen Forest, ii) Secondary Moist Bamboo Brakes, iii) Pioneer Euphorbiaceous Scrub, iv) East Himalayan Moist Mixed Deciduous Forest, v) East Himalayan Subtropical Wet Hill Forest, vi) Assam Subtropical Pine Forest.	India Forest Atlas prepared by Forest Survey of India, Dehradun
	c) Wastelands	6021.14 sq km (28.56% of the State's total geographical area) is wasteland including jhumland.	Wastelands Atlas of India, 2010.
2. Projected Forest vulnerability to climate change	a) Vulnerability maps and attribute data	Although the State is having a large area under forest cover, the forests are not good in quality. The State has 13,016 sq km open forest which is 67.70% of the total forest cover and 61.74% of the total geographical area. It is expected that a large extent of open forests, particularly in the hilly terrain, may	As indicated above in column 1.

		adversely affect not only the forest eco-system but adjoining areas as well. The situation is likely to be further aggravated in Mizoram by the prevalence of shifting cultivation and other biotic interferences.	
		Effect of climate change in the State is – 1) irregular behavior of rainfall, 2) rise in mean maximum and mean minimum temperatures, 3) gradual and progressive increase in humidity, and 4) increased frequency of extreme climate events (heavy rainfall, flash floods, etc.). Forests are highly vulnerable to these changes in climatic conditions. Impact of climate change on the forests coupled with biotic interferences is characterized by – 1) degradation (a large extent of open forests), 2) loss of biodiversity, 3) increased incidence of invasive species, and 4) loss of forest environmental functions (water conservation, soil conservation, flood control etc.).	1) Programme Design Document for North East Climate Change Adaptation Programme presented to KfW Germany, DoNER, and State Govt. 2) Field observations by Forest Officers.
3. Vulnerable Population / Communities	a) ST/SC Total population, ratio b) Scheduled areas	The majority of the population in the State - over 95% - belongs to STs.	2011 Census data, Govt. of India.

2.2   Importance of L1 Landscape

Based upon the criteria given in para 2.2, the entire State of Mizoram (Area: 21,081 sq. km.) has been taken as L1 Landscape. Proper treatment of the landscape in the State would bring ecological security in the region and would also contribute significantly to stabilize the changing climate. The bio-geographical importance of the L1 landscape has been given in para 1.3.

2.3   Criteria for selecting L2 Landscape

Operational units (L2 level) have been identified based mainly on five indicators which are (1) extent of open forest, (2) dependency of the local population on the forests i.e. biotic pressure, (3) drainage pattern, (4) prevalence of shifting cultivation and (5) compact block for treatment under GIM. The criteria for selection of L2 Landscapes are given below in detail:

	Criteria	Details	Details of the Source of data – Maps etc appended
Extent of open forests	Extent of degraded forests i.e. forests having very less canopy density	Aizawl, Champhai, Lawngtlai, Lunglei, and Mamit districts have larger area under open forests.	FSI, Dehradun
Forest Dependence	Forest areas (sq. kms.) per 1000 population	Aizawl, Champhai, Kolasib, and Serchhip districts have less forest areas per 1000 population. Therefore, it is expected that these districts may witness more biotic pressure on the forests.	Data for forest areas: FSI data and for population: census data.
Drainage Pattern	Catchment areas of major and important rivers	After identifying the divisions on the basis of first two criteria, the operational units have been identified within these divisions on the basis of these two criteria.	Maps obtained from GIS Cell, E&F Deptt., Mizoram
Prevalence of shifting cultivation	Areas including Abandoned Jhumland and Current Jhumland		Maps obtained from GIS Cell, E&F Deptt., Mizoram
Formation of Compact Block	All identified L2 landscapes to form a compact block for better outcomes.	Aizawl, Champhai, Darlawn, Kolasib and Thenzawl divisions form a compact block in the State.	Map of the State.

Table 3

2.4 Reasons for selecting this L2 landscape among other possible L2 landscapes within L1:

A meeting (brainstorming session) of senior forest officers was held in March, 2012 to discuss various issues and formulate suitable strategies for the preparation of Bridge Plan/Perspective Plan under GIM. The views presented by the senior officers in the meeting are summarized below:

- The operational units should be from the districts which satisfy either of the two criteria i.e. extent of open forests or biotic pressure on the forests. Further, this unit should be strategically important for i) treatment and management of catchment areas and ii) engagement of the local people in settled agriculture or other sustainable livelihood options i.e weaning them away from jhum cultivation.
- The operational units, so selected, should form a compact block.
- The forest divisions, where activities similar to those proposed under GIM (KfW sponsored North East Climate Change Adaptation Programme) are being carried out, may not be taken up as operational units.
- Aizawl city, which carries maximum concentration of population (26% of the State's population), has the significant impact on the climate and the eco-system in the State. Therefore, forest-based interventions inside and outside the city of Aizawl may be taken up under GIM.

Considering the above views, it was decided in the meeting that 8 nos. of operational units in 5 forest divisions namely Darlawn, Champhai, Thenzawl, Kolasib, and Aizawl (for Aizawl division limited to inside and outside Aizawl city) may be taken in the initial five years of GIM. Other areas/divisions may be taken up subsequently under GIM.

The proposed landscape, 'Aizawl' city is the State Capital of Mizoram which is under Aizawl Forest Range (Sadar) in Aizawl Forest Division. This Landscape holds important criteria among the people of Mizoram. Being a State Capital, the environment now consists of pollutions such as air pollution, water pollution, soil pollution etc. eventually caused by smoke from vehicles, sewages etc. of the people who dwells in. For this purpose, healthy environment such as fresh and healthy air, water, soil etc are profoundly needed for both human and wild animals. Therefore, it is greatly believed that the Green India Mission would ensure provide such a healthy environment for Aizawl City. The landscape consists of open and degraded forests, both Government and privately owned. There are many current and abandoned jhumlands as well. Further, it forms the catchment area of TlawngRiver which is the main source of water supply for the whole City. The treatments under Green India Mission would ensure continuous and uninterrupted supply of water for Aizawl City. As such, Aizawl City was selected as L2 landscape for treatment under GIM.

2.5 Importance of L2 Landscape (Aizawl City)

The identified landscape Aizawl City is the Capital of Mizoram. Treatment of this landscape under GIM would ensure regular water supply to the inhabitants living in Aizawl City. Well-stocked good-quality forests in "Aizawl" landscape will also stabilize

water flow in another major river of the region i.e. Tlawng river flowing in north-west direction and Tuirial river north direction.

All villages namely Sihphir, Sihphir Venghlun, Durtlang N, Durtlang, Muthi, Zemabawk, Chaltlang, Tanhril, Maubawk, Tlangnuam, Melthum and Hlimen having interests in "Aizawl City" have been taken as "Working Units" under L2 landscape.. The total geographical area of this L2 landscape is 207.58 sq. kms. In the past, most of the land was covered with well-stocked good-quality forests. However, the forests have suffered serious depletion and degradation due to traditional practice of shifting cultivation and uncontrolled felling of tress. As a result, presently, most of the areas are either wastelands or forests having very less canopy density i.e. less than 10%. It is expected that execution of well-planned strategies under GIM may result into ecological stability in the region.

Further, this L2 landscape controls water flow in several streams/rivers such as Tuithumlui, Beraw Lui, Serlui etc, and for the northern part of the city the Tuirial catchment area are Chite, Muthilui, Tuipawl, Kawrbel etc. . These water-bodies are natural sources of water for the whole Aizawl city area. The productivity of agricultural crops also depends upon water flow in these streams/rivers.

2.6   Criteria for selection of L3 landscape (Sihphir Venghlun)

All Local council and Village council namely Sihphir, Sihphir Venghlun, Durtlang North and Selesih have been taken as "working units" i.e. L3 landsacape

2.7   Importance of L3 landscape (SihphirVenghlun)

All Local Council of Sihphir Venghlun is one of the four L3 landscapes (working units) identified for coverage in L2 landscape "Sihphir Venghlun". The Sihphir Venghlun village was established around the year 1887. It has the population of 3498 with 615 households (57 households under BPL category). The villagers are quite educated, literacy rate being 97.2%.

The total geographical area of this L3 landscape is 31.40 sq km. In the past, most of the land was covered with well-stocked-good-quality forests. However, the forests have suffered serious depletion and degradation due to traditional practice of shifting cultivation and uncontrolled felling of trees. As a result, presently, most of the areas are either wastelands or forests having very less canopy density i.e. less than 10%. It s expected that execution of well-planned strategies under GIM may result into ecological stability in the region.

Further, this L3 Landscape controls water flow in several streams/Rivers such as Kawrbelriver and Tuipawlriver. These water-bodies are natural sources of water for Sihphir Venghlun village, Durtlang and Durtlang North, Selesih Local Councils and other nearby villages. The productivity of agricultural crops also depends upon water flow in these streams rivers.

2.8 Extent of L1 landscape

Name of the L1 landscape: The entire State of Mizoram (Map enclosed as Annexure 'A')

Location of the landscape:
    State   : Mizoram
    District   : All Districts
    Forest Division : All Forest Divisions

Extent (area, boundaries, geo-references):

- Geographical area of the State is 21,087 sq. kms.
- The State shares boundary with Assam and Manipur on the North, Myanmar on the East and the South, Tripura and Bangladesh on the west.
- It is closed between 21°56′ and 24°31′ N latitude & 92°16 and 93°26′E longitude.

2.9 Extent of L2 landscape

Name of L2 landscape   :   Aizawl City (Map enclosed as Annexure 'B')

Location of the L2 Landscape   :
    State   : Mizoram
    District   : Aizawl
    Division : Aizawl

Geo references of the L2 Landscape: It is located between 92°49'35.709" E, 23°52'14.248"N Longitude, 92°39'14.498"E, 23°44'38.737"N Latitude, 92°48'35.829"E Longitude, 92°48'35.829"E, 23°46'4.663"N Latitude

Area details of the landscape: (maps at Annexure C)

Area details of the landscape	:	(maps at Annexure C)
Open forests	:	77.05 sq. kms.
Moderately dense	:	40.01 sq. kms.
Dense forests	:	
Scrub lands	:	
WRC	:	1.72 sqkms
Horticulture	:	10.805 sq km
Other areas	:	10.604 sqkms
Current jhumland	:	2.13 sqkms
Abandoned Jhum	:	0.36sqkms
Area under Settlement	:	21.71 sqkms
Total area	**:**	**164.389 sq kms**

2.10 Extent and other features of L3 landscape (Sihphir Venghlun)

Table 4

Location	It is located at the outskirt of Aizawl between Durtlang village and Lungdai Village
GPS Coordinates:	1. 92°48′9.878″E,23°52′11.948″N 2. 92°49′55.451″E, 23°51′9.943″N 3. 92°45′12.332″E,23°47′32.33″N 4. 92°44′1.346″E, 23°49′11.963″ N

Area	31.40 sq. kms
Forest cover	Moderately dense forest – 10.52 sqkms., open forests – 16.70 sq. kms., non- forests – 3.09 sq. kms.
Forest type	Cachar Tropical Semi Evergreen Forest (2B/C2) mixed with bamboo breaks. Important species found in the locality are *Dipterocarpusturbinatus, D tuberculatus, Terminaliachebula, Emblicaspps, Careyaarorea* etc. Dominant bamboo species are *Melocannabaccifera, Dendrocalamushamiltonii, Bambusatulda, D longispathus* etc.
Soil quality	Three soil orders i.e. ultisols, inceptisols and entisols are found in the project area. The surface soil textures are loam to clay loam with clay content increasing with depth in the hills whereas in the valleys it is mostly sandy loam to sandy clay loams. The soils are acidic in nature with pH values ranging from 4.5 to 6.3. The soils in the hills are strongly acidic in reaction, whereas, the soils in alluvial deposits are less acidic in nature. The percentage of organic carbon content is medium (0.70%).
Topography	Some portion of the land is undulating with moderate slope i.e 15° to 30°, whereas most parts of the land are comparatively flat with an altitude of 800-900 mts. above MSL.

2.11   Profile of L3 Landscape (Sihphir Venghlun)

2.11.1 Population

The population data of Sihphir Venghlun village is given below in the following table:

Table 5A

No. of Households	Population		Children below 6years	Total
	Adult Male	Adult Female		
615	1465	1477	556	3498

The average family size is 5 to 6 persons per household.

The Population details of Workers are as under:-

Table 5B

Total workers	Regular/Main Workers	Irregular/Marginal Workers	Non Workers
Workers :1556 (44.5%) Male: 908 (15.8%) Female: 657 (18.75%)	Regular Workers:830 (23.7%) Male: 652 (18.6%) Female :162 (4.6%)	Irregular Workers:730 (20.8%) Male: 257 (7.17%) Female: 495 (14.15%)	Non Workers: 1942 Male : 821 Female: 1121

Source Census data 2011

2.11.2 Social structure

The social structure of the population at Sihphir Venghlun village is as under:-

				Table 6
General	Schedule Caste	Schedule Tribe	OBC	Total
Nil	Nil	3498	Nil	3498

Source: Census data, 2011

2.11.3 Wealth Ranking

		Table 7
SI No.	Classification	No. of families
1	Rich (families having RCC building or motor car whose annual income exceeds Rs. 5,00,000.00 per annum	40
2	Middle class but above BPL	518
3	Poor (families who are listed as BPL by the State Government)	57

Source: Actual field verification

2.11.4 No. of Educational Institutions

						Table 8
Anganwadi	Primary School	Middle School	High School	HSS	Colleges	Others
3	3	2	2	Nil	Nil	Nil

Source: Field Verification

2.11.5 Enrolment as on 15th Aug 2014

					Table 8
Anganwadi	Primary School	Middle School	High School	Colleges	Others
70	260	270	131	50	-

Source: Field Verification

2.11.6 Literacy percentage

Male – 98% Female – 97% Overall – 98% (Source: Census data 2011)

2.11.7 Occupation

		Table 10
SI.No	Category/Type of Occupation	No. of families
1	Govt. Service	86
2	Jhumming (Shifting cultivation)	Nil
3	Horticulture including WRC	160
4	Business/Petty trade	42
5	Daily labourers	200
6	Others	247

Source: Field verification

2.11.8 Livestock population

					Table 11
Cattle	Goat	Sheep	Pig	Poultry	Others
102	Nil	Nil	240	1500	-

Source: Field verification

2.11.9 Agricultural practices

			Table 12
Category	Current Jhumming	Abandoned jhumming	WRC
Area (Ha.)	Nil	Nil	

Source: Existing Land use Map (*Annexure D*)

2.11.10 Cropping pattern

				Table 13
Sl. No	Crop	Time of Sowing	Time of Harvest	% of agri area Covered
1	Rice	April – May	Sept – Nov	20
2	Orange	May – June	Oct – Dec	1
3	Banana	April – March	Jan – Dec	2
4	Arecanut	May – June	March – April	3
5	Maize	March	June	3
6	Ginger	April – June	Oct – March	4
7	Pumkin	March	June	5
8	Calocasia	April	Nov – Dec	2
9	Local pea	March	Sept – Nov	2
10	Soya bean	June – July	Nov – Dec	1
11	Oil palm	June – July	Aug – Dec	10
12	Squash	Feb – March	Jun – Dec	40
13	Bean	March – May	May – July	7

2.11.11 Water Resource

The main sources of water for the people living in Sihphir Venghlun village is carried and distributed by trucks from Public Health Engineer (PHE department).House – to – house connection has not been provided. Rain water harvesting is being done by limited well-to-do families only.

2.11.12 Energy consumption Pattern

The village has already been electrified by Power & Electricity Department of the State . In addition, energy requirement is met from LPG connections, kerosene oil and fuel-wood collected from the Village Supply Reserves, the Jhumlands and surrounding forests.

2.11.13 Demand of fuel-wood

The demand for fuel-wood has been worked out based upon inputs received from NGOs, VC members and other villagers. The annual demand is as under:

Table 14

Average annual demand/household	No. of households	Total annual demand of the village
1.1 cum.	615	676.5 cum

The supply as per the carrying capacity of existing forests in L3 (Sihphir Venghlun) is expected as under:-

A - Total forest area: 27.22Sqkm

B - GS/ha. As per working Plan Survey Report:40.83844

C - Total GS:111162.2

D - Annual Yield:1500Cum

E - Fuel-wood availability assuming 30% of the annual yield as fuel wood: 450 Cum

2.11.14 Existing infrastructure

Anganwadi centre (3.), Primary School (3), Middle School (2), High School (2), Community Hall (1), Mini-Market (1), Mini Playground (1), Medical Set-up (1),and Govt. Offices – 1 (Forest Beat Office). Local Institutions/ Organizations: - Village Council, YMA(1 Branch), MUP(1 Unit), MHIP (1 Unit)and Games and Sports Association.

2.11.15 Problems and Priority

Through PRA exercise, problems being faced by the villagers could be ascertained. These are lack of proper medical facility, absence of link road to agricultural fields, incomplete net-work of approach roads within the village, in-sufficient supply of LPG cylinders and scarcity of good quality water supply.

2.12 Demographic statistics of L2 Landscape

Table 15

Sl. No.	Village	Population			Poverty (BPL families	Forest dependency	Drivers of degradation	JFMCs/other institutions of Gram Sabha
		Total	SC	ST				
1	Sihphir Venghlun	3498	-	3498	54	Fuel, wood timber for construction of houses, furniture etc.	Draft in para 2.15	Village Forest Development Committee (VFDC) active in all these villages.

Source: Census data 2011

2.13 Present intervention for addressing livelihood needs (forestry as well as non-forestry sector) and promoting sustainable forest development

Table 16

Sl. No	Name of Scheme	Implementing agency	Forestry and Wildlife activities	Other components Like SMC	Details of livelihood component	Villages Covered
1	NLUP (New Land Use Policy)	Different line departments such as	Plantation of bamboos and other indigenous tree species	Construction of terracing, trenching Rain water harvesting structures etc.	Provision of technical and financial assistance to the villagers for sustainable livelihood supports as to wean them away from the traditional practice of Jhumming	Sihphir Venghlun
2	NAP (National Afforestation Programme)	FDA Aizawl/ Concerned VFDC	Sustainable management of the forests with people's participation Plantation is carried out over degraded lands	Construction of contour trenching, check-dams, inspection path etc.	Livelihood support/ income generation through direct employment, sustainable extraction of bamboo and marketing of value added products	
3	NBM (National Bamboo Mission)	FDA Aizawl/ Concerned VFDC	Plantation of bamboos, training to farmers for increasing crop – productivity	- do -	Livelihood support is expected from extraction of bamboo and marketing of value added products	
4	IAY (Indira Gandhi Awaas Yojona)	DRDA, Aizawl	Nil	Nil	Construction of house for the poor	

2.14 Gaps/ strategies identified under GIM

Table 17

Sl. No	Village	Forestry activities proposed	Other activities like SMC	Livelihood activities proposed	Any others
1	Sihphir Venghlun	Enhancement of quality in existing forests(with limited root stock and open blanks), ecosystem restoration (rehabilitation of shifting cultivation), agro Forestry, Social forestry and support to community conserved areas	Intervention in catchment areas of hydrological importance	Community livelihood enhancement	Promoting alternate energy sources

2.15 Drivers of degradation and deterioration in the forest eco-system

Table 18

Sl.No	Village	Drivers of degradation
1	Sihphir Venghlun	Traditional practice of shifting cultivation, lack of strategic and participatory land-use planning, excessive population pressure on the forests for fuel-wood, fodder, timber etc., inadequate scientific management of watersheds including rain water harvesting.

Chapter 3
Process undertaken for preparation of Micro-Plan/Sub-Landscape Plan

3.1 Constitution of Micro-Plan Working Group

A meeting was held with members/representative of village Council for Sihphir Venghlun village conservation – oriented NGOs (YMA, MHIP and MUP), Forest Officers and other prominent citizens of the village on 8.12.2014 as per recommendations made in the meeting, a Micro Plan Working Group was constituted for facilitating preparation of micro-plan for Sihphir Venghlun village (L3 landscape). The constitution of the group is as under:-

Leader:	P.C.Lalthantluanga	B/O Sihphir Forest Beat
Members:	1. H.K.Lalhmunsiama	V.C
	2. Lalsangluaia	VFDC
	3. H.Zakunga	YMA
	4. C.Zonunsangi	MHIP
	5. Sub. Laltana	MUP
	6. Lalthardenga	V.C

A questionnaire was designed by the committee for collection of data on (1) demographic status, (2) socio economic conditions of the villagers, (3) resources available in the village etc. the questionnaire was designed to facilitate (1) assessment of current land use pattern and formulation of proposed land use pattern, (2) participatory resource-based land-use planning (3) identification of livelihood needs, (4) planning of activities for sustainable livelihood support to the people and ecological stability in the region. The members of the working Group also visited the area covered under L3 landscape.

3.2 Participatory Rural Appraisal (PRA)

PRA exercise including group discussion, experience sharing, one-to-one discussion with the villagers etc. was conducted to promote people's participation in project planning, implementation and monitoring. Information on various issues concerning GIM implementation was explained to the villagers through interception of maps and other documents. Resource mapping, preparation of existing land use map, seasonal calendar (cropping season and wealth ranking exercise were completed during PRA activities. The principle of participatory land use planning was adopted. With available technical inputs and in consultation with all stakeholders including the local public, proposed land used map was prepared. The proposed land used map reflects the area where interventions are required to be planned and implemented.

3.3 Households Survey

Household survey was carried out in the village covering almost all the families. A structured questionnaire was prepared for collecting information and dependency of every family on the forests as well as other required data/details.

3.4 Transcend Walk

Transcend walk was done by the micro-plan Working Group along-with local people and VFDC members. During transcend walk, inputs were obtained from the field for deciding upon the suitability of the proposed land-use. GPS readings of the prominent sites/spots visited by the Working Group were also recorded.

3.5 Details of Awareness programmes, meeting and Work-shops along with the resolutions and other outcomes

Table 18

Sl. No	Workshops/ Meetings (state/landscape /village level)	Category (stakeholders and no. of participants)	Major outcomes	Details of facilitators engaged	Whether resolutions/ Photographs enclosed
1	State/L1 level (State mission Directorate)	Representatives of all line departments, reputed academic and technical institutions	Suggestions were given for strengthening institutions responsible for GIM implementation in the State	Principal secretary, environment and Forest Govt. of Mizoram	Minutes of the meeting enclosed at *Annexure-IB*
2	District (L2 level)	Representatives of VFDCs, VCs and NGOs (YMA, MHIP and MUP). (66 participants)	More trainings are required to be given at all levels. GIM guidelines in local dialect may be distributed to locals/ trainees	Divisional Forest Officer, Aizawl Forest Division	Minutes of the meeting enclosed at *Annexure-IC*
3	Village (L3 level) at Sihphir Venghlun	Representatives of VFDCs, VCs and NGOs (YMA, MHIP and MUP). (90 participants)	GIM guidelines in local dialects may be prepared and distributed, rural outreach activities for data collection may be carried out the earliest	Member Secretary VFDC Sihphir Venghlun	Minutes of the meeting enclosed at *Annexure- IE*

3.6   Details of facilitators engaged in the process, institutions who prepared the micro plans and approval of the Gram- Sabha

Sl. No	Village	Institution who prepared micro-Plan JFMC/Others	Details of participation of all stakeholders/ departments	Approval of Gram-Sabha	Details of facilitators engaged
1	Sihphir Venghlun	Aizawl, FDA and Micro-Plan working Group as mentioned in para 3.1	Representatives of Government departments, Conservation oriented NGOs, VFDC, VC and the local public	Approved by Local Council, Sihphir Venghlun village Approval letter enclosed at *Annexure - ID*	Dr, Amit Kumar , Human Resource Development Deptt. MZU, Dr. F.Lalnunmawia Department of Forestry, MZU.

3.7   Details of involvement of district level committee in preparation of perspective plan especially of convergence mechanism

3.8   Details of the meeting/consultations with other departments in finalizing the convergence issues and perspective plan

Chapter 4
Activities proposed to be undertaken in the Sub-landscape (L2)

4.1 Current Land Use pattern

Current land use pattern has been mapped with interpretation of satellite imageries and field verification of interpreted data. The details are as under:-

Sihphir Venghlun village:

				Table 20A
Sl. No.	Land use category	Area (Sq. kms)	% of total area	Remarks
1	RRF	6.75	21.49	
2	Human Settlement	0.43	1.36	
3	Private Land	13.99	44.55	
4	Horticulture	8.82	28.08	
5	Community Land	1.37	4.36	

Source: GIS cell, E&F dept, Mizoram

4.2 Proposed Land Use Pattern

After careful scrutiny of current land use pattern, needs assessment and consultation with stakeholders, the following land use is designed/proposed:

Sihphir Venghlun village:

				Table 20 B
Sl. No.	Proposed land-use	Area (Sq. kms)	% of total area	Remarks
1	*Rehabilitation of shifting cultivation*	0.80	2.54	
2	*Plantation in urban & peri-urban Areas*	0.35	1.11	
3	*Farmers Land*	0.40	1.27	
4	*Highway Roadside plantation*	7.5	23.88	
5	*Moderate dense Forest Cover Showing Degradation*	0.25	21.49	
6	*Eco- restoration of degraded open forest*	0.88	2.80	
7	*Community land*	28.72	91.46	

4.3 Treatments proposed

The following prescriptions (sub- missions / categories) are proposed to achieve the objectives under GIM through sustainable use of available natural resources:

Submissions:

Table 20 C

Sl. No	Village	Submission/category			
		Enhance quality of forest cover and improving eco-system services	Ecosystem restoration & increase in forest cover	Agro forestry and social forestry (increasing bio-mass and creating carbon sink)	Enhancing tree cover in Urban and Peri-urban areas (including institutional lands)
1	Sihphir Venghlun	Stock enrichment planting to increase the quality of existing forests (ANR)	Plantation with indigenous species to improve ecosystem services (AR)	Raising of plantation along with agri-crops for generating additional income to farmers.	Afforestation activities with people's participation along the roads in school premises etc.

Cross –cutting interventions:

TABLE 20D

Sl. No	Village	Alternate energy sources	Livelihood enhancement	Community conserved areas	Watershed management
1	Sihphir Venghlun	Provision of solar devices, LPG connection to BPL families	Support to forest based cottage industries for value addition of forest produce and marketing of value added products and also support to eco-tourism activities	Technical and financial assistance to village community as well as conservation oriented NGOs for sustainable management of the forests	Rain water harvesting, distribution of water tanks / retaining wall, soil and water conservation measures etc.

4.4 Objectives

Short term objectives

- Identification and arrest of drivers responsible for eco-system degradation
- Water-shed management – ridge to valley approach
- Increase in fuel-wood and fodder availability
- Employment generation
- Awareness for sustainable management of natural resources

4.5   Village-wise details of submissions proposed for treatment (Action plan)

Table 22A

Sl. No	Submission	Category	Proposed area (in Ha.)	Proposed cost (in lakh)	Livelihood activities	Proposed cost (in lakh)
1	*2*	*3*	*4*	*5*	*6*	*7*
1	*Enhance quality of forest cover and improving eco system services*	*a) Moderately dense forest cover but showing degradation*	*65*	*26.325*	*Supppport to Forest based cottage industries 10 unit @5.2*	
		b) Eco restoration of degraded open forests "Type (A)"	*80*	*34.560*	*Improvement planting with protection activities 100ha @0.19945*	
		c) Eco restoration of degraded open forests "Type C"	*120*	*162.00*		
2	*Ecosystem restoration and increase in forest cover*	*Rehabilitation of shifting cultivation*	*180*	*145.800*		*92.945*
3	*Enhancing tree cover in Urban & Peri-urban areas (Including institutional lands)*	*Plantation in Govt. offices/School compounds, etc.*	*35*	*94.500*	*Dist.. of rain water harvesting storage 20 nos.@1.5*	
4	*Agro forestry and social forestry (increasing bio mass and creating carbon sink)*	*a)Farmer's land including current fallows*	*90*	*48.600*	*Const. of RCC Public water reservoir 1nos@ 15*	
		b)Highways/rural roads/Canals/ Tank bunds	*15*	*28.350*		
	TOTAL		***585***	***540.135***		***92.945***

4.6   Treatment area under the landscape L2

Table 22A

Sl. No	Submission	Category	Proposed area (in Ha.)	Proposed cost (in lakh)	Livelihood activities	Proposed cost (in lakh)
1	*2*	*3*	*4*	*5*	*6*	*7*
1	*Enhance quality of forest cover and improving eco system services*	*a) Moderately dense forest cover but showing degradation*	*600*	*243*	*Supppport to Forest based cottage industries*	*939.726*
		b) Eco restoration of degraded open	*800*	*345*		

		forests "Type (A)"			Improvement planting with protection activities
		c) Eco restoration of degraded open forests "Type C"	1200	1620	
2	Ecosystem restoration and increase in forest cover	Rehabilitation of shifting cultivation	1600	1296	Dist.. of rain water harvesting storage
3	Enhancing tree cover in Urban & Peri-urban areas (Including institutional lands)	Plantation in Govt. offices/School compounds, etc.	400	1080	Const. of RCC Public water reservoir
4	Agro forestry and social forestry (increasing bio mass and creating carbon sink)	a)Farmer's land including current fallows	900	486	
		b)Highways/rural roads/Canals/ Tank bunds	200	378	
TOTAL			**5700**	**5448**	**939.726**

4.7   Map showing details of the area proposed village-wise enclosed
- Attached as Annexure-B

4.8   The geo-references of the treatment locations enclosed in the prescribed format
- Attached as Annexure-C, D, E, F, G & H.

4.9   Details of support activities proposed in the landscapes including proposed cost and village-wise details wherever applicable
The eco-restoration of degraded forests and enrichment of existing forests will provide livelihood support to the local people through sustainable extraction of forest produce value addition and marketing of value-added products, in addition, provision has been made in the scheme to provide technical and financial support to the people for setting up forest-based cottage industries.

4.10 Details of each cross cutting intervention proposed under the mission with area details, geo-references, activities etc.

Sihphir Venghlun:

Table 22B

Sl. No	Cross cutting interventions proposed	Activities	Unit	Total Cost (In lakh)	Geo-references
1	Alternate energy sources	1) Provisions of LPG connection	120 families	1.98	
		2) Solar device	80 families	1.32	
2	Community livelihood enhancement	Financial support to micro cottage industries	10 units	52	
3	Community conserved areas	Improvement planting with protection activities	100 Ha. @ Rs. 19945/-	19.945	
4	Watershed management	Distribution of rain water harvesting storage i.e. Syntax Tank	40 @ Rs.15000/No.	6	
		Construction/ Development of RCC public water points	1. @ Rs. 150000/No.	1.5	

4.11 Promotion of alternative fuel energy

Table 23

Sl. No	Village	Work- items proposed	No. of beneficiaries		Total (Rs in lakh)
			No. of family	No. of beneficiary	
1	Sihphir Venghlun	LPG connection to BPL families	120	120	1.98 @ Rs. 3300/No.
		Solar device	80	80	1.32 @ Rs 3300/No.
		Village sub-total	200	200	**3.3**

Chapter 5
Activities proposed under convergence

5.1   Activities proposed under convergence

<div align="right">Table 23A</div>

Sl. No	Village	Scheme	Implementing Agency	Area (Natural Resources Development Activities)		Other Activities (Social Sectors)	
				Works	Proposed funding	Activities proposed	Proposed funding
1	Sihphir Venghlun	NAP	FDA Aizawl/ VFDC	Afforestation (AR)	GIM & MOA		
2	"	IWMP	Soil & Water Conservation Dept.			Link Road	GIM & MOA
3	"	IWMP	Soil & Water Conservation Dept.			Water Tank	GIM & MOA
4	"	MNREGA	Rural Development	Roadside Plantation	GIM & MOA		
5	"	NLUP	Horticulture Deptt.	Squash Plantation	GIM & MOA		

Chapter 6
Institutional Set-up for implementation in the landscape

6.1 GIM Committee

Various committees have been constituted by the State government vide notification dated No.B.11016/16/2011- FST dt.11th Nov 2014 for effective implementation of GIM in Mizoram. A copy of the notification is attached as *Annexure-IA*. The Committees, which have been constituted, are as under:-

a) State Forest Development Agency for "Green India Mission"/ State Mission Directorate
b) State Level Steering Committee
c) GIM Cell under Environment & Forest Department
d) Revamped FDA for Green India Mission
e) District Level Steering Committee
f) Village Level GIM Committee

6.2 Institutional Set-up for implementation in the landscape

Table 24

Sl. No	Village	Institutions proposed for implemen-tation	Sub-mission of area			Details of other activities
			Submission	Category	Area (ha.)	
1	Sihphir Venghlun	Revamped VFDC	*Enhance quality of forest cover*	*a) Moderately dense forest cover but showing degradation*	50	Provision of support to cottage industries
				b) Eco restoration of degraded open forests "Type (A)"	70	
				c) Eco restoration of degraded open forests "Type C"	120	
			Ecosystem restoration and increase in forest cover	*Rehabilitation of shifting cultivation*	150	
			Enhancing tree cover in Urban & Peri-urban areas (Including institutional lands)	*Plantation in Govt. offices/School compounds, etc.*	35	
			Agro forestry and social forestry (increasing bio mass and creating carbon sink)	*a)Farmer's land including current fallows*	80	
				b)Highways/rur	15	

				al roads/Canals/ Tank bunds			34
			Alternate energy source	LPG connection to BPL families	120 families	
				Solar devices	80 families	
			Water shed management	Distribution of water tanks	20	
				Construction/ development of RCC public water points	1.	

Chapter 7
Livelihood Issues

7.1 Brief note on the forest dependency and livelihood issues village issues village – wise

7.1.1 Availability and Requirement of Fuel wood

Some of the households use fuel-wood as supply of LPG cylinders is much limited in the rural areas. The requirement and availability of fuel-wood is indicated below:-

Table 25

Sl. No.	Village	No. of households	Average fuel wood requirement per household (cum.)	Annual fuel wood requirement (cum)	Fuelwood availability (Annual Yield) (cum.)	Remarks
1	Sihphir Venghlun	615	1.1	676.5	1500	

7.1.2 Availability and Requirement of Fodder

Very few households practice cattle rearing for livelihood support. Therefore, demand for fodder is comparatively low/insignificant.

7.1.3 Availability and requirement of Timber

Demand for timber used in house construction and furniture has been worked out and is indicated below:-

Table 26

Sl. No.	Village	No. of house-holds	Average timber requirement per household (cum.)	Annual timber requirement (cum.)	Timber availability (cum.)	Remarks
1	Sihphir Venghlun	615	0.18	98.4	800	

7.1.4 Availability and Requirement of NTFP(s)

Bamboo, cane, thatch etc. are some of the important NTFP (s) which are extracted by the villagers from the forests. The demand as well as the availability for various NTFPs has been indicated below:-

Table 27

Bamboo (nos.)		Fuelwood (cum)		Broom(qtls)		Thatching grass (Bundles)	
Demand	Availability	Demand	Availability	Demand	Availability	Demand	Availability
40000	85000	675	875	50	87	780	1421

7.2 **Details of activities to be carried out to address livelihood issues through Green India Mission including details of activities, beneficiaries, cost, village-wise plan etc.**

Table 28

Sl. No	Village	Proposed livelihood activities	Role of facilitators if any engaged	Beneficiaries		Proposed cost (Rs. in lakh)	Remarks
				Family	No.		
1	Sihphir Venghlun	Technical and financial support to cottage industries	Provision of technical knowledge to improve quality and quantity of production as well as assistance in marketing	10	10	52	Cottage industries are required to produce handicraft like gasket, pot, local carriers, mat etc. from bamboo and cane.

Chapter 8
Baseline Survey

8.1 Baseline Survey

The baseline data for various parameters required for maintaining the outcomes of activities undertaken under GIM are given below:-

Sihphir Venghlun village:

Table 30

Parameters	Indicator	Baseline Status
1. Forest/tree cover on forest/ non-forest lands-in-the-Mission Target Area (MTA)	a) % of area with forest cover	86.68 % (total forest area 27.22sq km out of 31.40sq km)
	b) % area in various forest density classes	1) Very dense =0.00 2) Moderately Dense =53.18% (16.70 sq km) 3) Open Forest =33.50% (10.52 sq km)
2. Eco-system services from targeted areas / landscapes	a) Shannon- Weiner Index	2.003
	b) Biomass	Above Ground Biomass = 177859.6 tonnes Source: Field survey data
3. Soil	a) Depth of top soil	The soil is very deep in valley i.e. flatlands whereas in the hills it is deep to moderately deep
	b) Soil quality	The soils are lateric in nature, acidic upto 0 – 10 cm and coarse grain in the sub soil. The pH is normally 6.84. The soil organic carbon is measured 2.83% in 0-20cm in depth. The total nitrogen content of the soil in the depth was found to be 0.28%. The available phosphorous was found to be 6.00/g during rainy season. Exchangeable pottasium was measured at 959/g at 0 – 20 cm

4. Hydrology	a) Wetland area
	b) Stream beds/ water discharge
	c) Ground water, table – water level in wells/ springs
		a) No wet lands in the area
		b) Spring and streams are found here.
		c) The area is hilly with variable elevation.
		  Therefore, the ground water level varies.
		  In the village settlement area, the depth of water in well is about 40 ft

5. Annual Sequestration of Co2	Carbon sequestered in the target area.	Baseline Carbon Stock = 565814 tonnes	
6. Forest/ non-forest based livelihoods income	No. of targeted households (HH) reporting at least 25% increase in real income	Income (Rs. Annual)	No. of Households
		More than 5 lakh	40
		5 lakh >--- <50,000	518
		Less than 50,000	57
7. Quality of forest cover & ecosystem services of forest/non forests	a) % of forest area naturally regenerating	55% Source: GIS Cell, E&F Dept, Mizoram	
a) Moderately dense forests	b) Biomass	109120.30tonnes (AGB)	
c) Open forests		68739.2685 tonnes (AGB)	
d) Degraded grasslands		No degraded Grassland	
e) Wetlands		No wetland area	
8. Ecosystems are restored and forest cover is cover is increased in scrub, shifting cultivation areas etc.	% of area that is adequate stocked / productivity	Nil	
9. Forest and Tree cover in urban/peri-urban land	% of forest and tree cover in the targeted urban/peri-urban areas.	86.68(27.22sq kms out of 31.40 sqkms) Source: GIS Cell, E&F Dept, Mizoram	
10. Forest and tree cover on marginal agricultural lands/ fallow and other non- forest land under agro forestry/ social forestry	% of tree cover on non –forest land	39.07%(12.27 sqkms out of 31.40 sqkms) Source: GIS Cell, E&F Dept, Mizoram	
11. Public forest/ non forests areas	% of area under management of	25.82%(8.11 sqkms out of 31.40 sqkms) Legally under the Local council	

		Total households =	615
12. improved fuel wood-use efficiency and alternative energy devices adopted by households in MTA	% of HH reporting use of alternative energy devices	LPG users =	590
		Fuel-wood users =	100
		Fuel-wood only users=	25
		Solar devices users =	

13. Forest/non forest based livelihoods of the people living in and around the forests are diversified.	% of HH reporting diversification of income sources	Source of income	No. of households
		Govt. Service	86
		Jhumming/Gardening	
		Horticulture including WRC	106
		Business/Petty Trade	42
		Daily labourers	200
		Others	247

	community institutions	
(taken up under the Mission) are managed by the community institutions.	community institutions	

Chapter 9
Status of reforms proposed

9.1   Role of Gram Sabha (Village Council) in project planning, implementation and monitoring

Village level GIM committee has been constituted by the State Government vide notification No.B.11016/16/2011-FST Dt 11.11.2014 *(Annexure-IA)* for the following activities:-

1. To render support in the preparation of Perspective Plan,
2. To ensure implementation of planned and approved schemes (approved by the State Level Steering Committee and MoEFCC) with expected level of quality,
3. To promote active people's participation in the implementation of "Green Indian Mission" and
4. To provide feedbacks timely to concerned authorities for further improvement in programme implementation.

Further, VFDC would play key rile in project planning, monitoring and implementation under GIM. Both the VFDC and the Village Level GIM Committee would work closely in coordination with Gram Sabha (Village Council).

9.2   Revamping of FDAs and SFDAs

SFDAs and FDAs (General Body as well as Executive Committee) have been revamped for formulating suitable plans and executing well-planned projects with people's participation under GIM in Mizoram. The SFDA (General Body) will provide overall guidance for effective implementation of "Green Indian Mission" in the State. It will also oversee implementation of the broad policy framework in achieving Mission goals and objectives. The Executive Committee of revamped SFDA has been entrusted with the following functions:

1. Approval of Perspective Plan as well as Annual Plan of Operations;
2. Preparation of annual reports on GIM implementation in the Sates;
3. Programmatic convergence at the landscape level

The revamped FDA (General Body) will deal with policy issues pertaining to cohesion and convergence of different programmes at the Panchayat/Village Council level for better outcomes from the mission. The Executive Committee of revamped FDA will arrange for preparation of perspective plan/annual plan and convergence of various programmes.

9.3   FRAs compliance in areas covered under L2 and L3s

Claims for rights in the forests would be settled strictly as per the relevant acts applicable in the State of Mizoram.

9.4   Easing out regulatory framework in felling and transportation of forest produce

There is need to simply the procedure for issuing documents enabling felling and transportation of forest produce. The MoEFCC has recently taken initiative for simplifying rules and procedures for issue of permits and transit passes in respect of trees grown on non-forest private lands. The State of Mizoram would work in this direction in a proper way to motivate tree planters on non-forest private lands and also protect the valuable forest wealth existing in the State.

9.5   Strengthening frontline formation of E&F Department

Under Necessary actions would be taken for "Capacity Building" of frontline forest staff engaged in implementation of GIM in the State. Suitable training as well as required facilities would be provided to them for executing the planned works efficiently. It is expected that well-trained forest staff with people's participation would be able to deliver the desired output/outcomes GIM.

10.1   Cost of the Mission

Item wise and Year-wise cost of the mission for various work items has been given in the table place din Annexure – A1, A2 & A3.

10.2   Mission sustainability

The mission will be executed with active participation of the local people. On completion of the project, crop productivity of the existing forest will increase substantially. Sustainable extraction of forest produce, value addition to forest produce as well as marketing of value added products will provide livelihood support to the people while maintaining ecological stability in the region. Thus the mission is economically viable and socially adoptable.

Abstract

	Table
1. Name of L1 landscape	*The State of Mizoram*
2. Name of L2 landscape	*Aizawl City*
3. Forest and non-forest area in L2	*Forest area- 128.42 sq.kms, Non-forest area- 79.16 sq.kms*
4. Drivers of degradation in the landscape	*Traditional practice of shifting cultivation, Lack of strategic and participatory land-use planning, excessive population pressure on the forests for fuel-wood, fodder, timber etc., inadequate scientific management of watersheds including rainwater harvesting.*
5. Results of problem analysis	*The analysis of survey data shows that the area is in need of proper scientific treatment to reduce or reverse the ongoing ecosystem degradation.*
6. Existing scheme implemented in the landscape	*NAP, NBM , NLUP & IAY*
7. Implementing agencies under GIM	*Revamped FDA, Aizawl*
8. GIM activities :-	
(a) Submission/Category	**Funding** **Rs. in lakh**
1. Enhancing quality of forest cover	
a) Moderately dense forest cover but showing degradation	*26.325*
b) Eco restoration of degraded open forests "Type (A)"	*34.560*
c) Eco restoration of degraded open forests "Type C"	*162*
2. Ecosystem restoration and increase in forest cover	*145.80*
3. Enhancing tree cover in Urban & Peri-urban areas (including institutional lands)	*94.500*
4. Agro forestry and social forestry (increasing bio-mass and creating carbon sink)	
a)Farmer's land including current fallow	*48.600*
b)Highways/ruralroads/Canals/ Tank bunds	*28.350*
Sub Total A	**540.135**

B 5. LPG connection to BPL families	*3.96*
6. Solar devices	*2.64*
7. Distribution of water tanks	*6*
8. Construction of RCC public water points	**15**
Sub Total	**27.60**
(C) Other support activities	
1. Research	*10.935*
2. Publicity/Media/Outreach activities	*5.467*
3. Monitoring and Evaluation	*5.467*
4. Strengthening local-level institutions	*27.337*
5. Strengthening FDs	*27.337*
6. Mission organization, operation and maintenance, contingencies and overheads	*4.057*
Sub Total C	**80.600**
(D) Livelihood activities	*92.945*
Sub Total D	**92.945**
(E) Community conserved area and sacred groves	
1. Improvement planting with protection activities.	*19.945*
Sub Total E	**19.945**
Total (A+B+C+D+E)	**761.2250**

WORKS DETAILS UNDER DIFFERENT SUBMISSIONS OF L3 LANDSCAPE " SIHPHIR VENGHLUN"

Sl. No	Sub-mission/ intervention	Category	Type	Rate/Ha. (Rs.)	Total Phy target for 2016-17 to 2017-18	2016-17 Activity undertaken	2016-17 Fin already achieved	2017 - 2018 Phy	2017 - 2018 Fin	2017 - 2018 Total	2018 - 2019 Phy	2018 - 2019 Fin	2019 - 2020 Phy	2019 - 2020 Fin	2020 -2021 Phy	2020 -2021 Fin	2021 - 2022 Phy	2021 - 2022 Fin	2022 -2023 Phy	2022 -2023 Fin	Total Phy	Total amount
1	2			3				6	7		8	9	10	11	12	13	14	15	16	17	22	23
A .Sub Missions and Interventions																						
1	Sub-mission 1 : Enhancing quality of existing forest cover	Category a) Moderately dense forest cover but showing degradation	**ANR Without Plantation**		25	11																
			Advance work	9450		7.14	0.675	14	1.323		40	3.780									65	5.778
			Adv. Work (Bal of 2016-17)	9450		3.86		3.86	0.365													0.365
			Creation	15660				7.14	1.119		14	2.192	40	6.264								9.575
			Creation (Bal of 2016-17)	15660							3.86	0.604										0.604
			1st yr maintenance	9720							7.14	0.694	14	1.361	40	3.888						5.943
			1st yr main (Bal of 2016-17)	9720									3.86	0.375								0.375
			2nd yrs maintenance	3510									7.14	0.251	14	0.491	40	1.4040				2.146
			2nd yr main (Bal of 2016-17)	3510											3.86	0.135						0.135
			3rd yr maintenance	2160											7.14	0.154286	14	0.3024	40	0.864		1.321
			3rd yr main (Bal of 2016-17)	2160													3.86	0.0833				0.083
			Sub Total	40500		11	0.675	25	2.806	3.481	65	7.271	65	8.250	65	4.669	57.857	1.790	40	0.864		26.325
		Category b) Eco restoration of degraded open forests Type A 200 Plants /Ha.	**200 Plants / Ha (Type A)**		40	17																
			Advance work	8100		16	1.296	23	1.8630		40	3.24									80	6.399
			Adv. Work (Bal of 2016-17)	8100		1		1	0.081													0.081
			Creation	15390				16	2.462		23	3.540	40	6.156								12.158
			Creation (Bal of 2016-17)	15390							1	0.154										0.154
			1st yr maintenance	8100							16	1.296	23	1.863	40	3.24						6.399
			1st yr main (Bal of 2016-17)	8100									1	0.081								0.081
			2nd yrs maintenance	6480									16	1.037	23	1.490	40	2.592				5.119
			2nd yr main (Bal of 2016-17)	6480											1	0.065						0.065
			3rd yr maintenance	5130											16	0.821	23	1.180	40	2.052		4.053
			3rd yr main (Bal of 2016-17)	5130													1	0.051				0.051
			Sub Total	43200		34	1.296	40	4.406	5.702	80	8.230	80	9.137	80	5.616	64	3.823	40	2.052		34.560
			2500 Plants / Ha (Type C)		50	17															120	
			Advance work	25650		14.21	3.645	33	8.465		70	17.955										30.064
			Adv. Work (Bal of 2016-17)	25650		2.79		2.79	0.716													0.716
			Creation	53460				14.21	7.597		33	17.642	70	37.422								62.660
			Creation (Bal of 2016-17)	53460							2.79	1.492										1.492
			1st yr maintenance	20250							14.21	2.878	33	6.683	70	14.175						23.735
			1st yr main (Bal of 2016-17)	20250									2.79	0.565								0.565
			2nd yrs maintenance	18090									14.21	2.571	33	5.970	70	12.663				21.203
			2nd yr main (Bal of 2016-17)	18090											2.79	0.505						0.505
			3rd yr maintenance	17550											14.21	2.494	33	5.792	70	12.285		20.570
			3rd yr main (Bal of 2016-17)	17550													2.79	0.490				0.490
			Sub Total			17	3.645	50	16.777	20.422	120	39.966	120	47.240	120	23.143	105.79	18.944	70	12.285		162.000

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Sr	Sub-mission	Category	Activity	Rate	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
2	Sub-mission 2: Ecosystem restoration and increase in forest cover	Category a) Rehabilitation of shifting cultivation areas	**1100 Plants / Ha.**		80	29																
			Advance work	18360		22.35	4.103	51	9.364		100	18.36									180	31.827
			Adv. Work (Bal of 2016-17)	18360		6.65		6.65	1.221													1.221
			Creation	36450				22.35	8.147		51	18.590	100	36.450								63.186
			Creation (Bal of 2016-17)	36450							6.65	2.424										2.424
			1st yr maintenance	11340							22.35	2.534	51	5.783	100	11.34						19.658
			1st yr main (Bal of 2016-17)	11340									6.65	0.754								0.754
			2nd yrs maintenance	8100									22.35	1.810	51	4.131	100	8.1				14.041
			2nd yr main (Bal of 2016-17)	8100											6.65	0.539						0.539
			3rd yr maintenance	6750											22.35	1.509	51	3.443	100	6.75		11.701
			3rd yr main (Bal of 2016-17)	6750													6.65	0.449				0.449
			Sub Total			29	4.103	80	18.731	22.835	180	41.908	180	44.798	180	17.518	157.65	11.991	100	6.75		145.800
3	Sub-mission 3: Enhancing tree covers in urban and peri urban areas	Category a) Plantation in urban and peri uraban areas	**2500 Plants/ Ha.**		35	12																
			Advance work	59400		8.829	5.244	23	13.662												35	18.906
			Adv. Work (Bal of 2016-17)	59400		3.171		3.171	1.884													1.884
			Creation	81000				8.829	7.151		23	18.630										25.781
			Creation (Bal of 2016-17)	81000							3.171	2.569										2.569
			1st yr maintenance	59400							8.829	5.244	23	13.662								18.906
			1st yr main (Bal of 2016-17)	59400									3.171	1.884								1.884
			2nd yrs maintenance	35100									8.829	3.099	23	8.073						11.172
			2nd yr main (Bal of 2016-17)	35100											3.171	1.113						1.113
			3rd yr maintenance	35100											8.829	3.099	23	8.073				11.172
			3rd yr main (Bal of 2016-17)	35100													3.171	1.113				1.113
			Sub Total			12	5.244	35	22.697	27.941	35	26.443	35	18.645	35	12.285	26.171	9.186	0	0		94.500
4	Sub-mission 4: Agro forestry and social forestry	Category a) Farmers land including current fallows	**Farmers land**		40	16																
			Advance work	13500		12.45	1.681	24	3.240		50	6.75									90	11.671
			Adv. Work (Bal of 2016-17)	13500		3.55		3.55	0.479													0.479
			Creation	20250				12.45	2.521		24	4.860	50	10.125								17.506
			Creation (Bal of 2016-17)	20250							3.55	0.719										0.719
			1st yr maintenance	7020							12.45	0.874	24	1.685	50	3.51						6.069
			1st yr main (Bal of 2016-17)	7020									3.55	0.249								0.249
			2nd yrs maintenance	6750									12.45	0.840	24	1.620	50	3.375				5.835
			2nd yr main (Bal of 2016-17)	6750											3.55	0.240						0.240
			3rd yr maintenance	6480											12.45	0.807	24	1.555	50	3.24		5.602
			3rd yr main (Bal of 2016-17)	6480													3.55	0.230				0.230
			Sub Total			16	1.681	40	6.240	7.921	90	13.203	90	12.899	90	6.176	77.55	5.160	50	3.24		48.600
		Category b) Highways/ Rural Roads/Canals/Tank bunds	**Roads/Canals/Tank Bunds**		15	7																
			Advance work	29700		6.42	1.907	8.00	2.376												15	4.283
			Adv. Work (Bal of 2016-17)	29700		0.58		0.58	0.172													0.172
			Creation	83700				6.42	5.374		8.00	6.696										12.070
			Creation (Bal of 2016-17)	83700							0.58	0.485										0.485
			1st yr maintenance	32400							6.42	2.080	8.00	2.592								4.672
			1st yr main (Bal of 2016-17)	32400									0.58	0.188								0.188
			2nd yrs maintenance	21600									6.42	1.387	8.00	1.728						3.115
			2nd yr main (Bal of 2016-17)	21600											0.58	0.125						0.125
			3rd yr maintenance	21600											6.42	1.387	8.00	1.728				3.115
			3rd yr main (Bal of 2016-17)	21600													0.58	0.125				0.125
			Sub Total			7	1.907	15	7.922	9.829	15	9.262	15	4.167	15	3.240	8.58	1.853				28.350
	TOTAL OF SUB MISSIONS				285	126	18.551	285	79.580	98.131	585	146.281	585	145.136	585	72.648	498	52.748	300	25.191	585	540.135

No	Activity	Items	Basis																		
5	Promoting alternative feul energy	Biogas, solar devices, LPG, Biomass based systems, improved stoves	*Per Household*	3300			**100**	3.3	3.3	**100**	3.3										**200**	**6.6**
			TOTAL OF A	285	126	18.551	385	101.4	101.4	685	149.581	585	145.136	585	72.648	497.5982	52.748	300	25.19	785	**546.735**
B	FOR SUPPORT ACTIVITIES																				
	Research (2%)							2.029		2.992		2.903		1.453		1.055		0.504		10.935
	Publicity/Media/Outreach activities 1%							1.014		1.496		1.451		0.726		0.527		0.252		5.467
	Monitoring & Evaluation (1%)							1.014		1.496		1.451		0.726		0.527		0.252		5.467
	Livelihood activities (17%)							17.24		25.429		24.673		12.350		8.967		4.282		92.945
	Strengthening local level institutions (5%)					0.03		5.042		7.479		7.257		3.632		2.637		1.260		27.337
	Strengthening FDs(5%)							5.072		7.479		7.257		3.632		2.637		1.260		27.337
	Mission organisation, Operation maintenance, Overheads (4%)							4.057		5.983		5.805		2.906		2.110		1.008		21.869
			TOTAL OF B					**35.50**		**52.354**		**50.798**		**25.427**		**18.462**		**8.817**		**191.357**
			TOTAL OF A+B					**136.9**		**201.93**		**195.933**		**98.075**		**71.210**		**34.008**		**738.092**

Sub-Mission/ Intervention	Category	Items of Work	Rate per Ha. (in Rs.)	2017-18	
				Physical Target (in Ha.)	Financial Outlay (in lakh)
A.					
Sub-Mission- 1: Enhancing quality of forest cover and improving ecosystem services	a) Moderately dense forest but showing degradation	1) Advance Work	9450	14	1.323
		2) Creation	15660	11	1.723
		3)Adv. Work (Balance of 2016-17)	4050	11	0.446
					3.491
	b) Eco-restoration of degraded open forests (Type A)	1) Advance Work	8100	23	1.863
		2) Creation	15390	17	2.616
		3)Adv. Work (Balance of 2016-17)	1350	17	0.2295
					4.709
	b) Eco-restoration of degraded open forests (Type C)	1) Advance Work	25650	33	8.465
		2) Creation	53460	17	9.088
		3)Adv. Work (Balance of 2016-17)	8640	17	1.469
Sub total					**19.022**
Sub-Mission - 2: Ecosystem restoration and increase in forest cover (1.8 mha)	a) Rehabili-tation of Shifting Cultivation Areas	1) Advance Work	18360	51	9.364
		2) Creation	36450	29	10.571
		3)Adv. Work (Balance of 2016-17)	7290	29	2.114
Sub total					**22.048**
Sub-Mission - 3: Enhancing tree cover in Urban and Peri- Urban areas (including institutional lands	a) Plantation in Urban and Peri - Urban areas	1) Advance Work	59400	23	13.662
		2) Creation	81000	12	9.720
		3)Adv. Work (Balance of 2016-17)	13500	12	1.620
Sub total					**25.002**
Sub-Mission - 4: Agro-Forestry and Social Forestry (increasing biomass & creating carbon sink) : 3 m ha	a) Farmer's land including current fallows	1) Advance Work	13500	24	3.240
		2) Creation	20250	16	3.240
		3)Adv. Work (Balance of 2016-17)	5130	16	0.821
					7.301
	c) Highways/ Rural Roads/ Canals/ Tank Bunds	1) Advance Work	29700	9	2.673
		2) Creation	83700	6	5.022
		3)Adv. Work (Balance of 2016-17)	4590	6	0.275
Sub total					**7.970**
Total of A.					**89.543**
Sub-Mission 5: Promoting alternative fuel energy	Biogas, solar devices, LPG, Biomass-based systems, improved stoves	Perhousehold	3300	100	3.3

APPROVAL OF MICRO PLAN

Green India Mission (G.I.M) hnuaia Activities hrang hrang Sihphir Venghlun Micro-plan a propose te hi tha kan ti a, kan pawmpuia, hma la turin rem kan ti e.

(LACREULMZOIA)
Secretary
Secretary
Village Council/Court
Sihphir Venghlun : Aizawl District

(CH.K.LALHMANGSIAMA)
President
Village Council
Sihphir Venghlun Village
President
Village Council/Court
Sihphir Venghlun : Aizawl Distr.

SIHPHIR VENGHLUN VILLAGE LEVEL COMMITTEE ON G.I.M PROJECT

A hun	:	25Th. Nov. 2014 (Tue) Dar 10:00A.M
A hmun	:	Forest Quaters Sihphir Forest Beat

Chairman   :   Pu PC. Lalthantluanga Beat Officer Sihphir Forest Beat

Member Present

1. Pu HK.Lalhmunsiama   VCP Sihphir Venghlun
2. Pu Lalsangluaia   VFDC
3. Pu H. Zakunga   Y.M.A
4. Sub. Laltana   M.U.P
5. C. Zonunsangi   MHIP
6. Pu Lalthardenga   V.C

Pu PC. Lalthantluanga, Beat Officer, Sihphir Forest Beat in Committee a kaihruai a, Green India Mission(G.I.M) Project bik atan G.I.M Chairman tura ruat a nih thu leh G.I.M Project kalphung tur leh hmalakna tur te a sawifiah hmasa a. Village Level Committee ten khawtlang tan thil tha tak a nih thu an sawi a, G.I.M Project hmalakna tur te chu lawm takin an pawm ta a ni.

He GI.M. Project atana thil tul hrang hrang DATA a tul turte lakkhawm nghal a ni. Tin, Household Servey leh Transect-Walk te neia hmalak nghal nise kan ti.
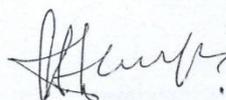
(H. ZAKUNGA)
Meeting Secretaty

25/11/2014
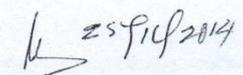
(PC. LALTHANTLUANGA)
Meeting Chairman
Sihphir Venghlun Village Level
Committee on G.I.M Project

MAP OF L1 LANDSCAPE MIZORAM

KOLASIB.DIVN

KAWRTHAH.DIVN

DARLAWN.DIVN

MAMIT.DIVN

AIZAWL DIVN

CHAMPHAI.DIVN

THENZAWL DIVN

N.VANLAIPHAI.DIVN

LUNGLEI.DIVN

TLABUNG.DIVN

LADC

CADC

LADC

MADC

Legend

Working Area

Division Boundary
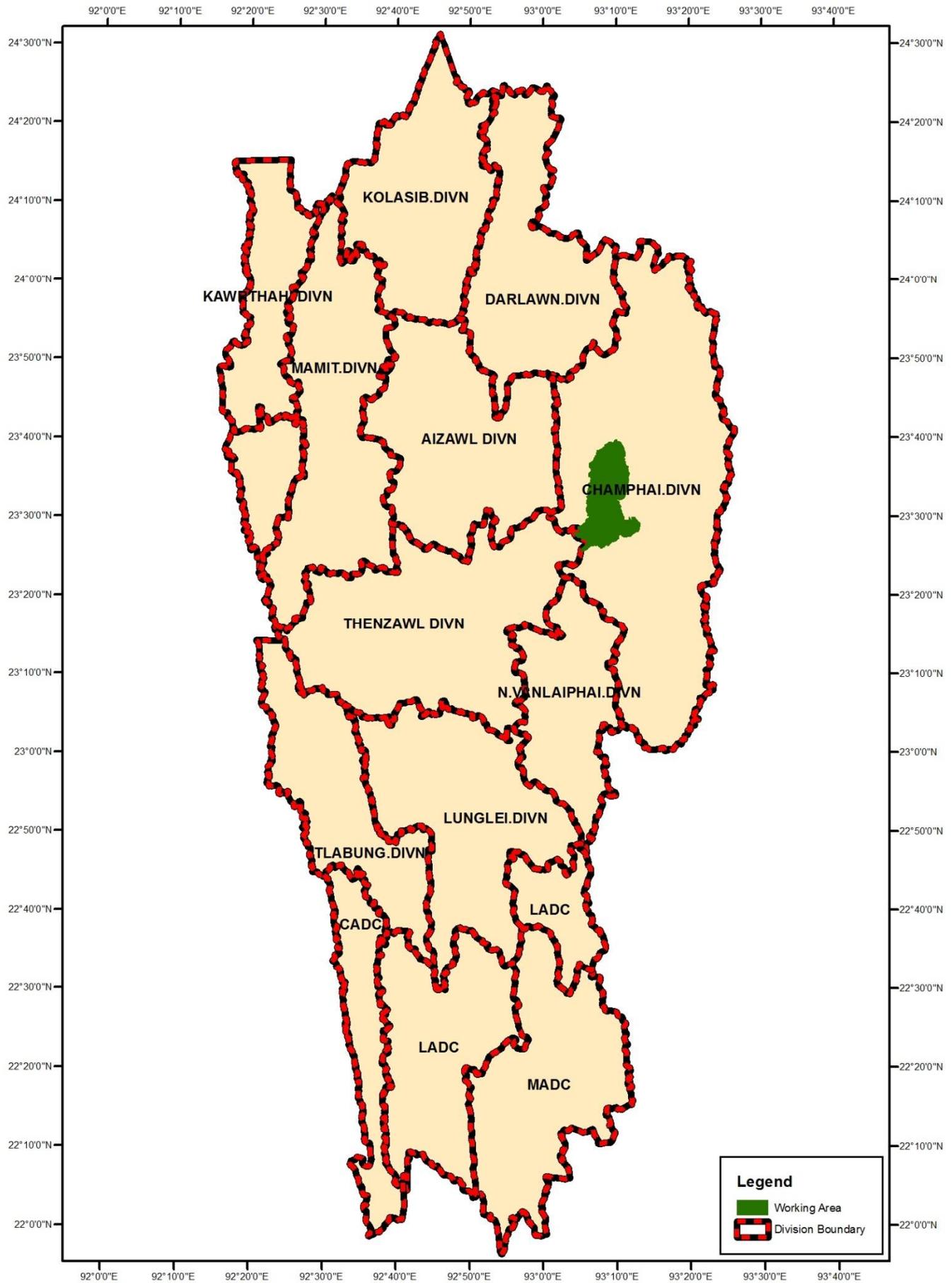
GEOGRAPHICAL MAP OF L2 LANDSCAPE AIZAWL FOREST RANGE : AIZAWL FOREST DIVISION

Sihphir VC Area

Sihphir Venghlun VC Area

Durtlang North LC Area

Sihphir

Durtlang LC Area

Muthi VC Area

Durtlang Leitan LC Area

Chaltlang LC Area

Bawngkawn LC Area

Zuangtui LC Area

Aizawl

Tanhril Local Council Area

Luangmual LC Area

Bethlehem LC Area

Venghlui LC Area

Maubawk LC Area

Republic LC Area Zemabawk LC Area

ITI LC Area

Maubawk LC Area

Mission Vengthlang LC Area

Salem LC Area

Kulikawn LC Area Mualpui LC Area

Tlangnuam LC Area

Saikhamakawn LC Area

Hlimen LC Area

Melthum LC Area

0 0.5 1   2 Kilometers

Legend

Working Area

Village Council Area

Local Council Area

Settlement

Local Council Area   - 95.23 Sqkm
Village Council Area - 69.15 Sqkm
Tptal Working Area   - 164.38 Sqkm

Prepared by
GIS Cell EF&CC Dept. Mizoram

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DRAINAGE MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN

Scale - 1:75,000

Legend

Working Area

Drainage
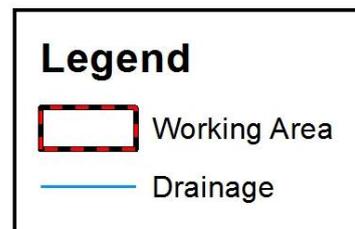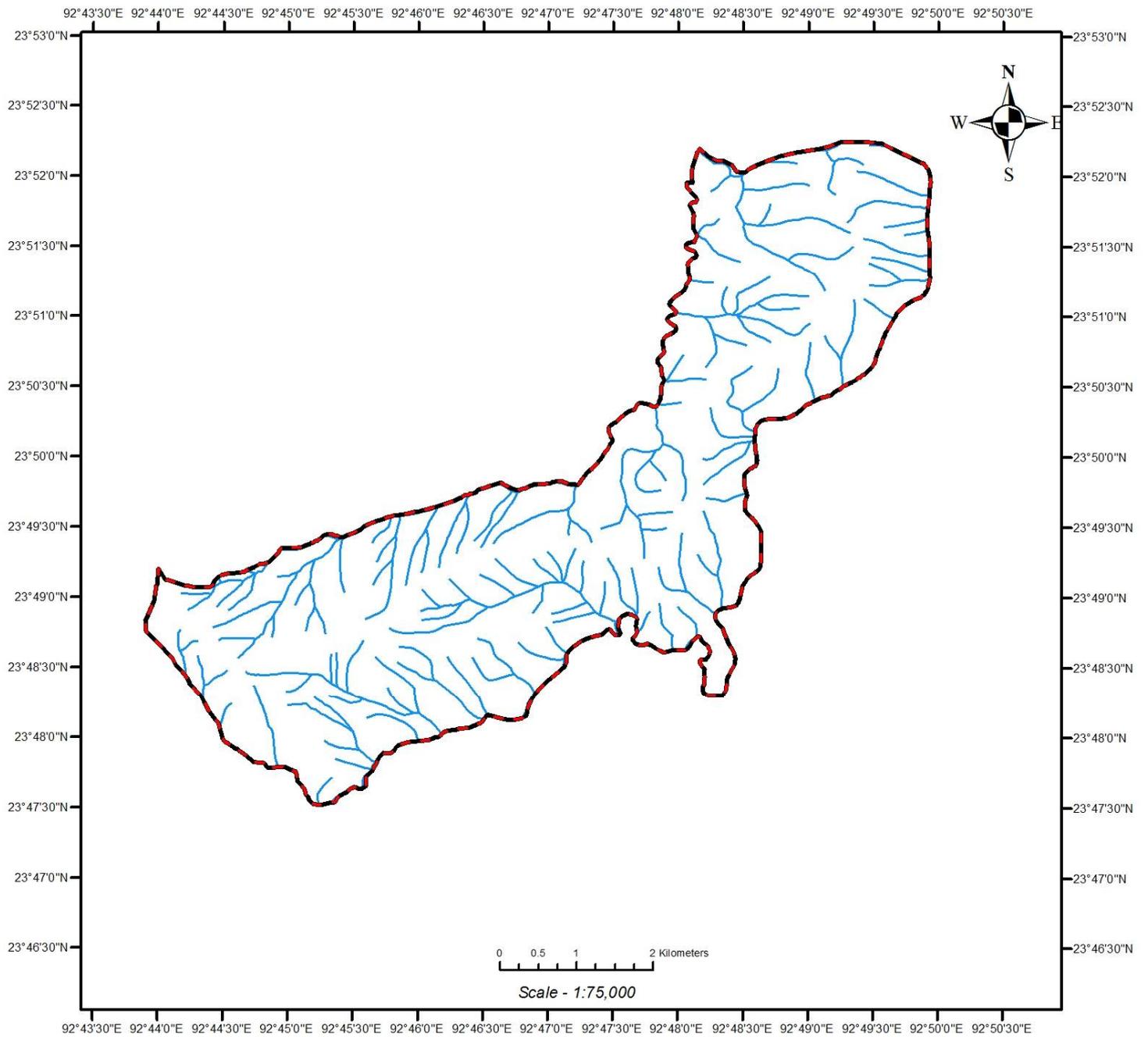
Prepared by
GIS Cell EF&CC Dept. Mizoram

LANDUSE MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN
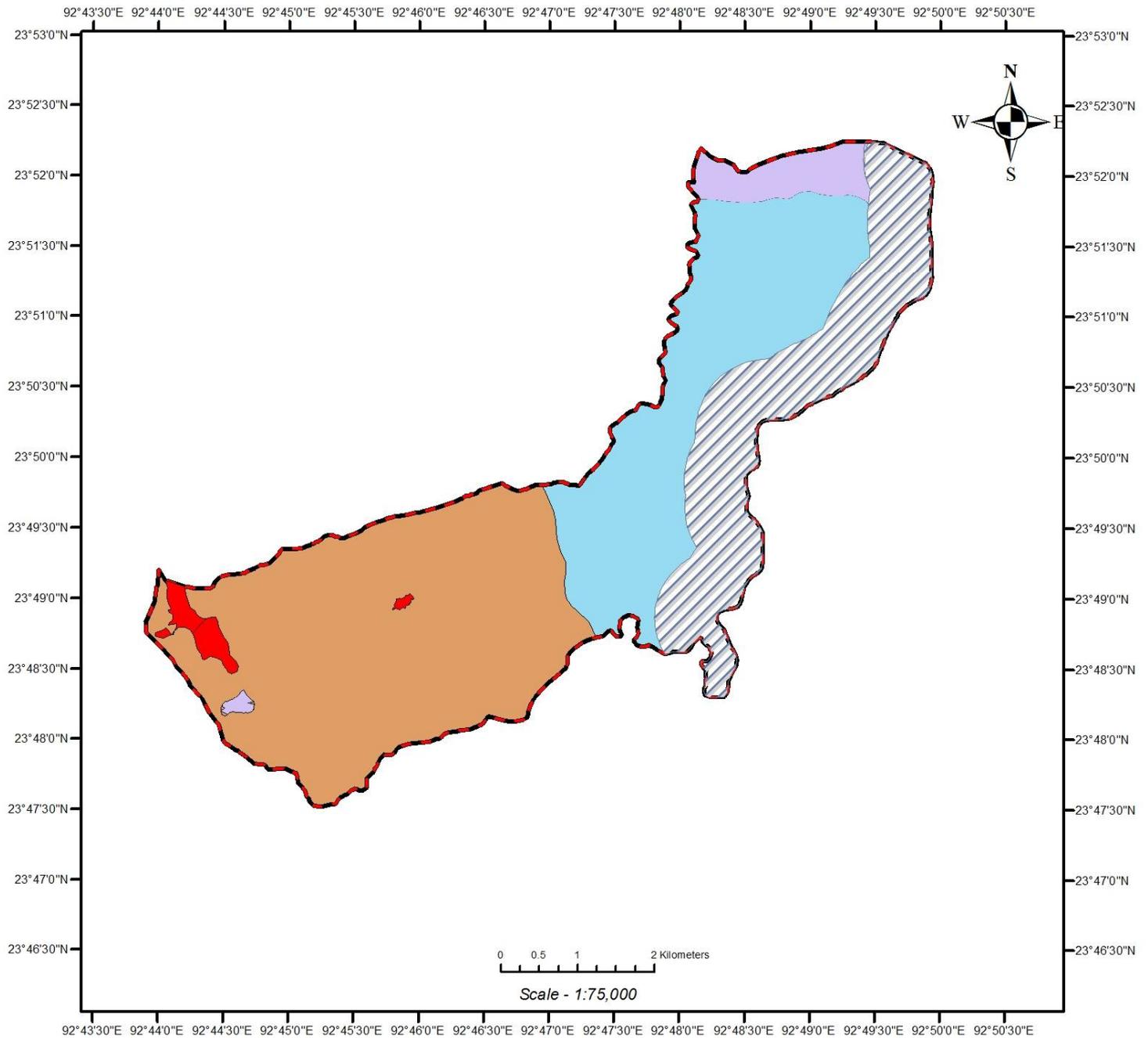
Working Area - 31.40 SqKm
RRF - 6.75 Sqkm
Human Settlementt - 0.43 Sqkm
Private Land - 13.99 Sqkm
Horticulture - 8.82 Sqkm
Community Land - 1.37 Sqkm

Legend

- RRF
- Human Settlement
- Working Area
- Private Land
- Horticulture
- Community Land

Scale - 1:75,000
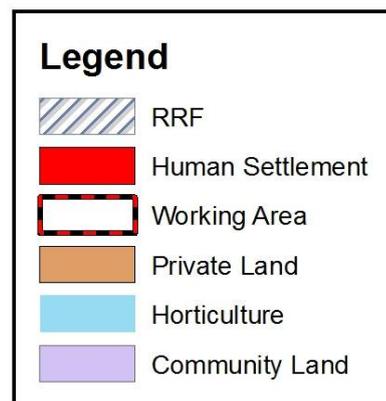
Prepared by
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PROPOSED LANDUSE MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN
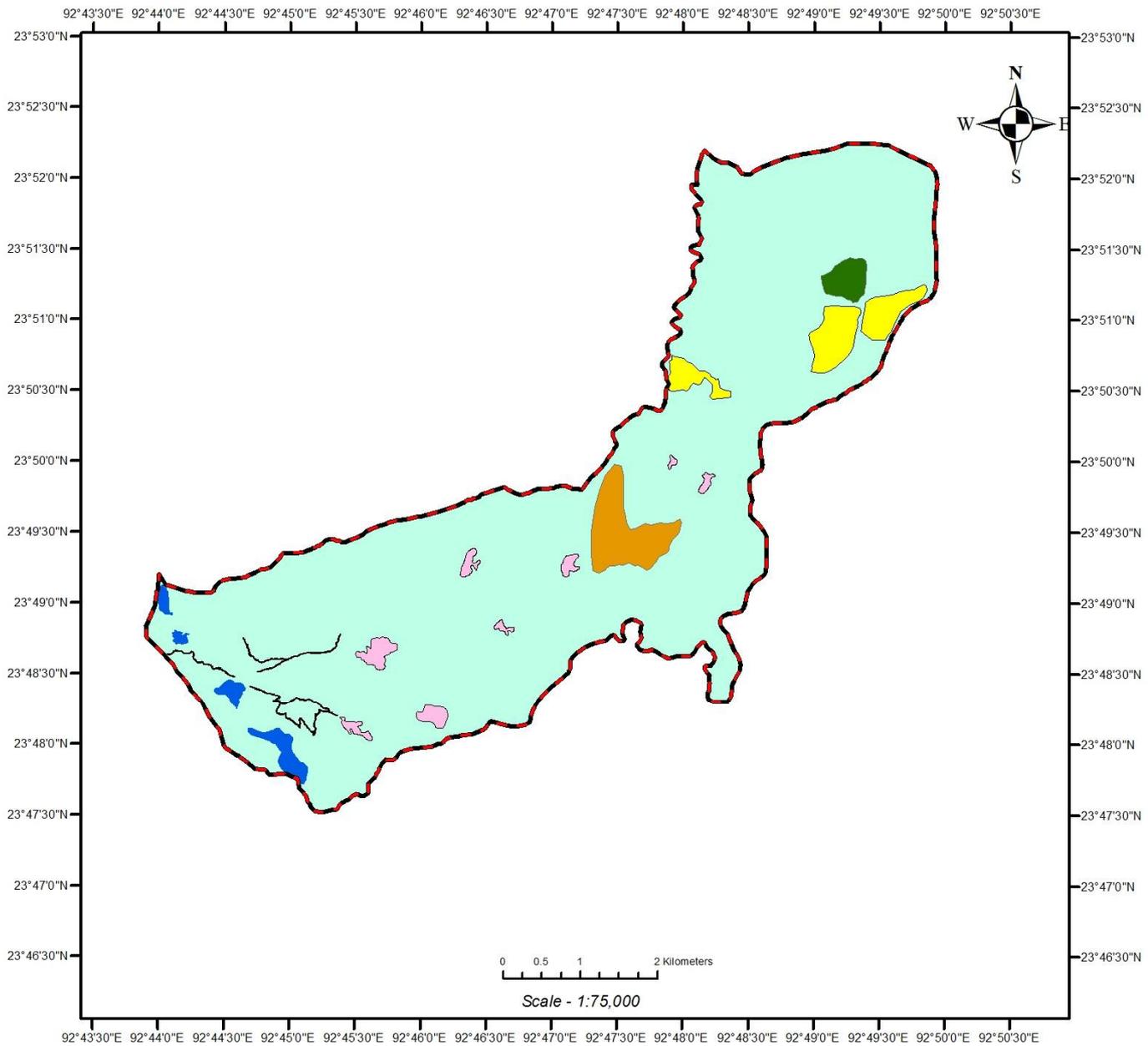
Working Area - 31.40 SqKm
Rehabilitation of Shifting Cultivation - 0.80 SqKm
Plantation in Urban & Peri-urban Areas - 0.35 Sqkm
Agro Forestry & Social Forestry :
1. Farmers Land - 0.40 SqKm
2. Highway/ Roadside Plantation - 0.15 SqKm
Community Land :
1. Moderately Dense Forest Cover Showing Degradation - 0.25SqKm
Eco-restoration of degraded open forest - 0.88 SqKm
Community Land - 28.72 Sqkm

Legend

- Working Area
- Community Land Moderately Dense Forest
- Community Land Degraded Open Forest
- Rehabilitation of Shifting Cultivation
- Plantation in urban & Peri-urban area
- Highway/Roadside Plantation
- Farmers Land
- Community Land

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CONTOUR MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN

Scale - 1:75,000

Legend

Contour
Working Area
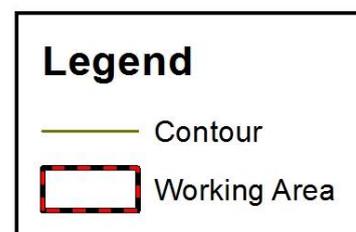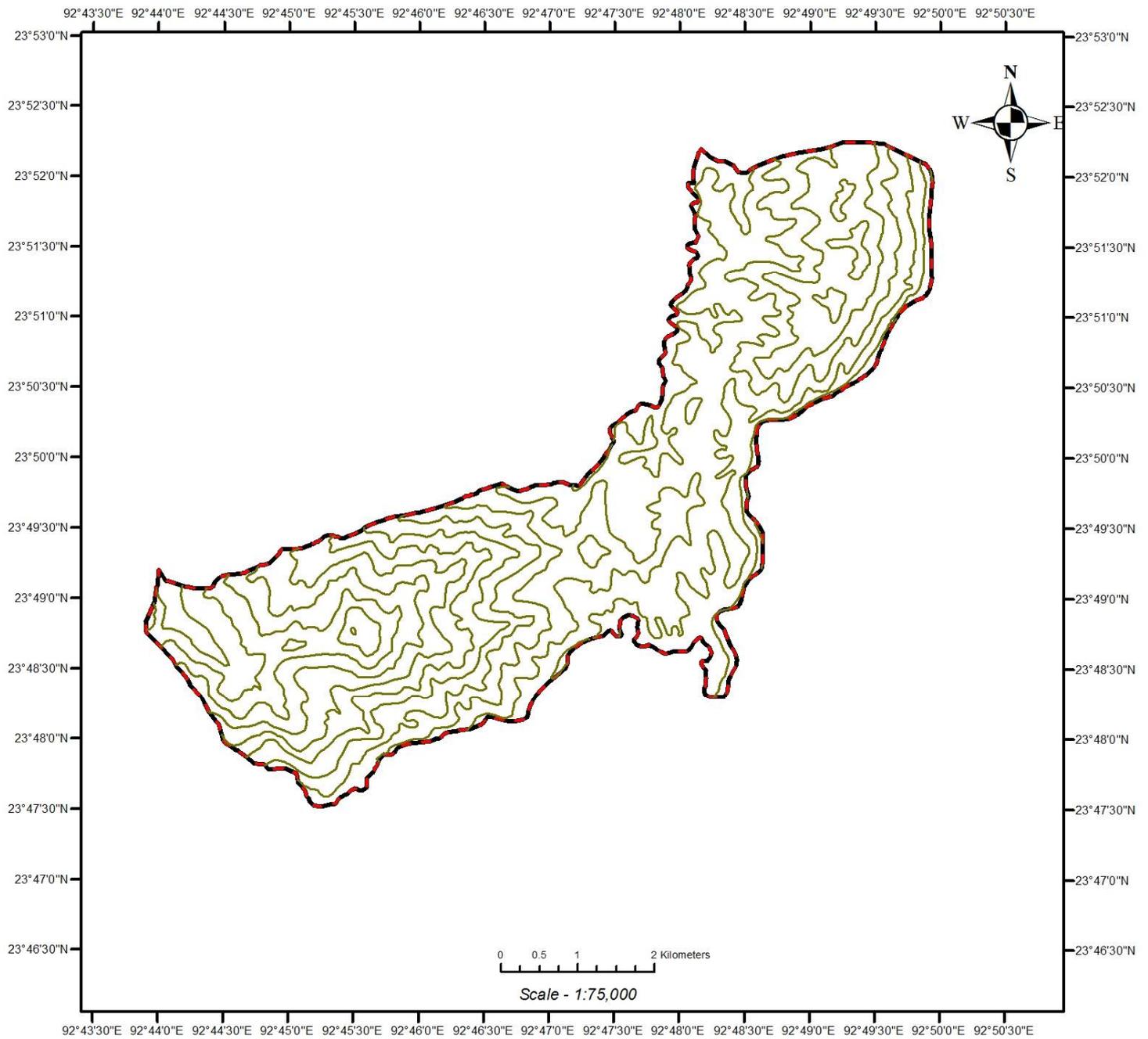
Prepared by
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GEOGRAPHICAL MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN

Scale - 1:75,000
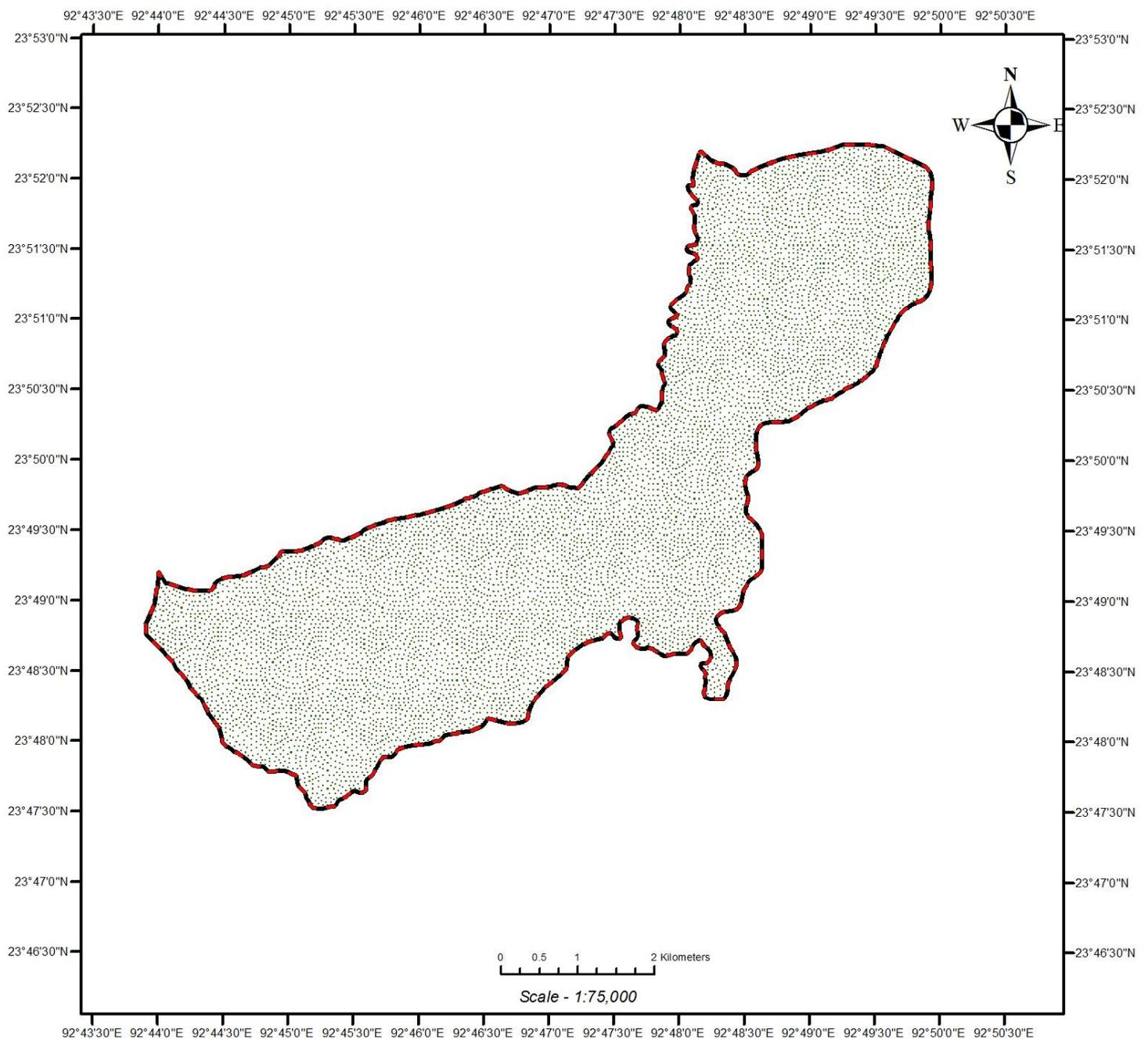
Legend

Working Area

Prepared by
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VEGETATION MAP OF L3 LANDSCAPE SIHPHIR VENGHLUN
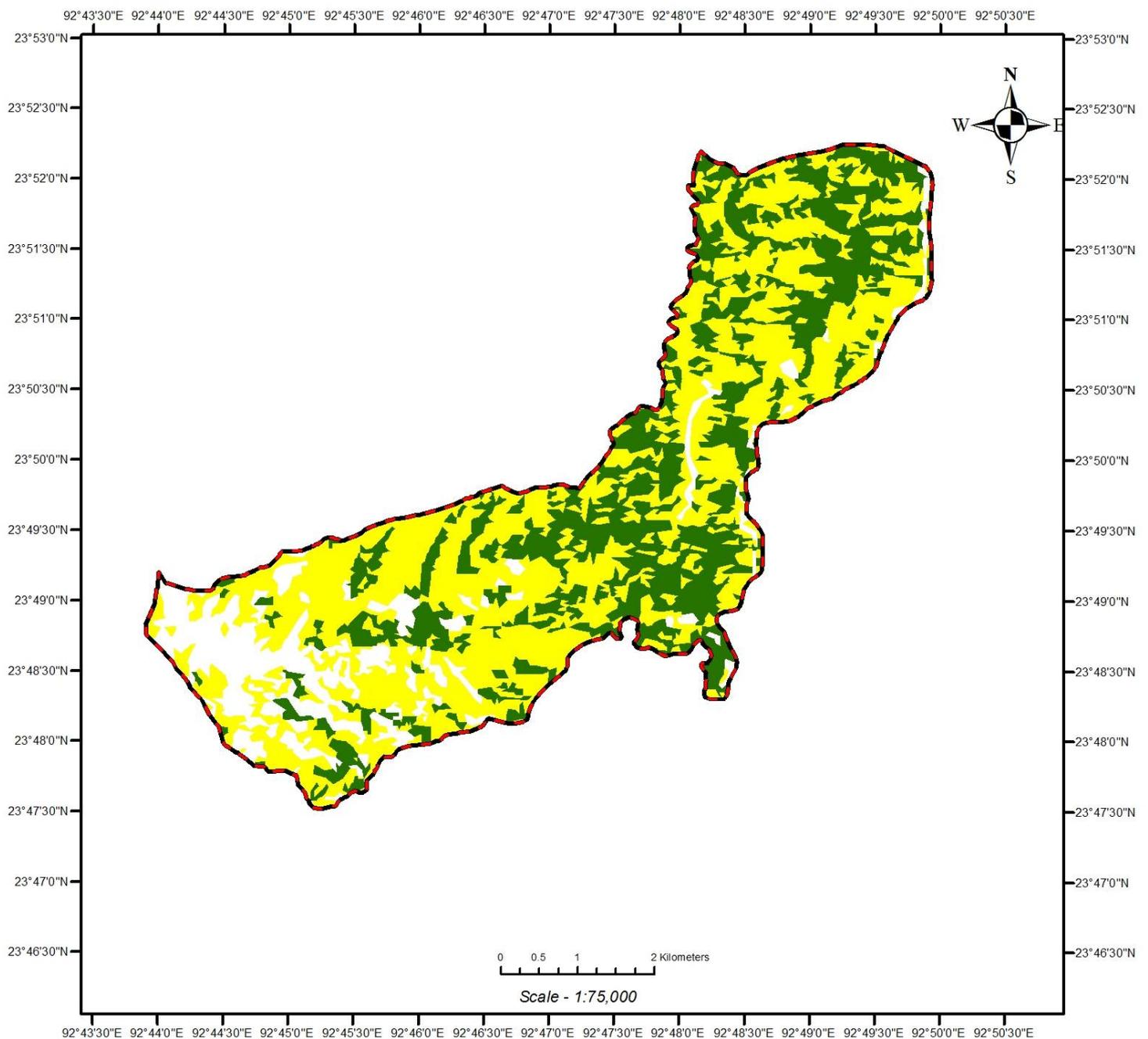
Working Area - 31.40 SqKm
Moderately Dense Forest - 10.52 Sqkm
Open Forest - 16.70 Sqkm
Non Forest - 4.18 Sqkm

Legend
Working Area
Moderate Dense Forest
Open Forest
Non-Forest

Scale - 1:75,000
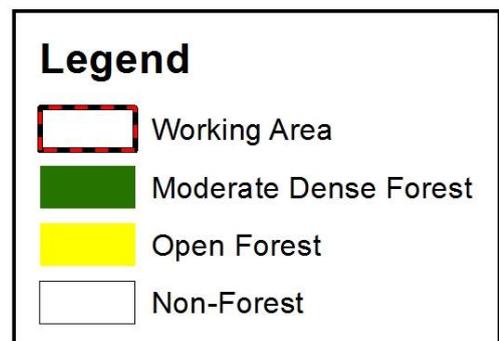
Prepared by
GIS Cell EF&CC Dept. Mizoram

CALCULATIONS OF TOTAL CARBON STOCK 2017 AIZAWL L2
SIHPHIR VENGHLUN L3

SI.No.	PLOT NO.	VOLUME	GS	AGB	AGC	BGB	DWB	LBM	SOC	CS	Total Forest area in Ha.
1	2	4	5	6		7	8	9	10	11	13
1	24	3									2722
2	26	3.448									
3	27	2.08									
4	30	1.952									
5	33	3.4175									
6	37	2.6933									
7	47	2.6369									
8	48	1.7									
9	54	1.677									
10	55	3.3472									
11	58	3.24									
12	59	3.665									
13	62	3.108									
14	63	3.725									
15	65	3.9									
16	66	3.872									
17	78	3.95									
TOTAL		28.8072	40.8384	65.3415	24.1764	30.7105	10.5657	3.271	57.14	207.86718	
TOTAL			111162	177860	65808	83594	28759.9	8903.7	155535	565814.47	

Sihphir Venghlun L3 Plot No. 24			
SI No	Tree Species	No of trees	Shannon Index Calculation
1	*2*	*3*	*4*
1	Bisclofia javanica	1	0.217990479
2	Litsea semicarpifolia	2	0.309954199
3	Gmelina arborea	2	0.309954199
4	Albizzia procera	3	0.354349905
5	Emblica officinalis	1	0.217990479
6	Colona faloribunda	1	0.217990479
7	Sterculia villosa	1	0.217990479
	SUM:	*11*	*1.846220219*

Plot No. 26			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Emblica officinalis	1	0.217990479
2	Alseadaphne petidaris	1	0.217990479
3	Albizzia procera	3	0.354349905
4	Bischofia jaramica	1	0.217990479
5	Gmelina arborea	1	0.217990479
6	Vitex peduacularis	1	0.217990479
7	Elaeocarpus lanseofolias	2	0.309954199
8	Banhinia variegata	2	0.309954199
	SUM:	*12*	*2.064210699*

Plot No. 27			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Schima wallichii	2	0.309954199
2	Albizzia procera	1	0.217990479
3	Bombax insigne	1	0.217990479
	SUM:	*4*	*0.745935157*

Plot No. 30

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Gmelina arborea	2	0.309954199
2	Sterculia villosa	2	0.309954199
3	Colona floribunda	1	0.217990479
4	Litsea semicarpifolia	1	0.217990479
5	Bisclofia javanica	2	0.309954199
6	Morus macraura	1	0.217990479
7	Alseadaphne petiolaris	1	0.217990479
8	Albizzia procera	2	0.309954199
9	Artocarpus chaplasha	1	0.217990479
	SUM:	*13*	*2.329769191*

Plot No. 33

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Alseodaphne potiolaris	1	0.217990479
2	Sterculia villosa	1	0.217990479
3	Colona floribunda	1	0.217990479
4	Baccaurea samiflora	1	0.217990479
5	Morus macroura	1	0.217990479
6	Spondias pinnata	1	0.217990479
7	Bischofia javanica	1	0.217990479
8	Litsea semicarpifolia	1	0.217990479
9	Artocarpus Chaplasha	1	0.217990479
	SUM:	*9*	*1.961914314*

Plot No. 37

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Miliusa roxburghliana	2	0.309954199
2	Steriopernum Chelonoides	2	0.309954199
3	Sterculia villosa	1	0.217990479
4	Spodius pinata	2	0.309954199
	SUM:	*7*	*1.147853075*

Plot No. 47			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Toona ciliata	2	0.309954199
3	Tiaminana colorata	1	0.217990479
4	Vermicia Montana	3	0.354349905
	SUM:	*6*	*0.882294583*

Plot No. 48			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Schima wallichii	1	0.217990479
2	Sterculia villosa	1	0.217990479
3	Bombax insigne	1	0.217990479
4	Vermicia Montana	2	0.309954199
5	Bischofia javanica	1	0.217990479
	SUM:	*6*	*1.181916116*

Plot No. 54			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Gmelina arborea	3	0.354349905
2	Emblica officinalis	3	0.354349905
3	Albizza procera	3	0.354349905
4	Ticus religiosa	1	0.217990479
5	Litsea semicarpifolia	1	0.217990479
6	Bischofia javanica	1	0.217990479
7	Castanopsis indica	2	0.309954199
8	Macaranga indica	1	0.217990479
	SUM:	*15*	*2.24496583*

Plot No. 55			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	2	3	4
1	Albizzia procera	3	0.354349905
2	Gmelina arborea	1	0.217990479
3	Bauhimia variegata	2	0.309954199
4	Litsea semicarpifolia	1	0.217990479
5	Vitex pedunculasis	1	0.217990479
6	Emblica officinalis	1	0.217990479
7	Alseadaphne petiolaris	1	0.217990479
	SUM:	*10*	*1.7542565*

Plot No. 58			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	2	3	4
1	Bauhimia variegata	3	0.354349905
2	Vitex pedunculasis	1	0.217990479
3	Albizzia Chinensis	3	0.354349905
4	Alreodaphne petiolaris	1	0.217990479
5	Albizzia procera	3	0.354349905
6	Emblica officinalis	2	0.309954199
7	Bischofia procera	1	0.217990479
	SUM:	*14*	*2.026975351*

Plot No. 59			
SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	2	3	4
1	Ficus prostata	1	0.217990479
2	Gmelina arborea	2	0.309954199
3	Mararanga indica	1	0.217990479
4	Bauhinia variegata	2	0.309954199
5	Albizzia Chinensis	2	0.309954199
6	Tetrameles mediflora	1	0.217990479
7	Albizzia procera	2	0.309954199
8	Litsea semicarpifolia	1	0.217990479
9	Castanopsis indica	1	0.217990479
10	Emblica officinalis	1	0.217990479
11	Sterculia villosa	1	0.217990479
12	Alseodaphne petiolaris	1	0.217990479
	SUM:	*16*	*2.983740629*

Plot No. 62

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Gmelina arborea	3	0.354349905
2	Bauhinia variegata	1	0.217990479
3	Litsea semicarpifolia	1	0.217990479
4	Alseodaphne petiolaris	2	0.309954199
5	Elacocarpus petiolasis	1	0.217990479
6	Albizzia procera	2	0.309954199
7	Enblica officinalis	1	0.217990479
8	Vitex pedunaularis	1	0.217990479
9	Albizzia Chinensis	1	0.217990479
	SUM:	*13*	*2.282201178*

Plot No. 63

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Elaeocarpus petiolasis	2	0.309954199
2	Bauhinia variegata	1	0.217990479
3	Albizzia procera	2	0.309954199
4	Alseodaphne petiolaris	1	0.217990479
5	Enblica officinalis	2	0.309954199
6	Albizzia procera	1	0.217990479
7	Gmelina arborea	2	0.309954199
	SUM:	*11*	*1.893788232*

Plot No. 65

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	*2*	*3*	*4*
1	Albizzia procera	4	0.367854877
2	Bauhinia variegata	1	0.217990479
3	Albizzia Chinensis	2	0.309954199
4	Enblica officinalis	2	0.309954199
5	Macaranga indica	1	0.217990479
6	Castanopsis indica	1	0.217990479
7	Gmelina arborea	2	0.309954199
8	Elaeocarpus petiolasis	1	0.217990479
9	Bauhinia variegata	3	0.354349905
	SUM:	*17*	*2.524029295*

Plot No. 66

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	2	3	4
1	Bauhinia variegata	1	0.217990479
2	Litsea semicarpifolia	1	0.217990479
3	Albizzia procera	3	0.354349905
4	Elaeocarpus lanceofolias	1	0.217990479
5	Tetramelos nudiflora	1	0.217990479
6	Bauhinia variegata	1	0.217990479
7	Macaranga indica	1	0.217990479
8	Gmelina arborea	2	0.309954199
9	Ficus prostata	1	0.217990479
10	Castanopsis indica	1	0.217990479
11	Sterculia villosa	1	0.217990479
12	Vitex peduncularis	1	0.217990479
13	Alseodaphne procera	1	0.217990479
	SUM:	*16*	*3.062199376*

Plot No. 78

SI No	Tree Species	Count the Trees of each species	Shannon Index Calculation
1	2	3	4
1	Bauhinia variegata	3	0.354349905
2	Albizzia procera	2	0.309954199
3	Tetramelos nudiflora	1	0.217990479
4	Syzugium cunini	1	0.217990479
5	Gmelina arborea	2	0.309954199
6	Elaeocarpus lanceaefolious	1	0.217990479
7	Castanopsis indica	1	0.217990479
8	Ficus prostrata	2	0.309954199
9	Albizzia procera	1	0.217990479
10	Bischofia jaramica	1	0.217990479
11	Albizzia chinensis	1	0.217990479
12	Emblica officinalis	2	0.309954199
	SUM:	*18*	*3.120100055*

TOTAL	34.0523698
SHANON WEINER INDEX	**2.003080577**